Ontario
Division of Mines

HONOURABLE LEO BERNIER, ***Minister of Natural Resources***

Dr. J. K. REYNOLDS, ***Deputy Minister of Natural Resources***

G. A. Jewett, Executive Director, Division of Mines *E. G. Pye, Director, Geological Branch*

ANNUAL REPORT

OF

RESIDENT GEOLOGISTS' SECTION

GEOLOGICAL BRANCH

1973

Edited by
C. R. Kustra

Compliments of
ONTARIO
MINISTRY OF NORTHERN DEVELOPME T
AND MINES

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MISCELLANEOUS PAPER 57

1974

MINISTRY OF NATURAL RESOURCES

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Parts of this publication may be quoted if credit is given to the Ontario Division of Mines. It is recommended that reference to this report be made in the following form:

Kustra, C.R. (editor)
1974: Annual Report of Resident Geologists' Section, Geological Branch, 1972; Ontario Div. Mines, MP57, 183p.

PREFACE

In 1972 the Ontario Department of Mines and Northern Affairs became the Division of Mines within a newly formed Ministry of Natural Resources. A complete restructuring of the old organization took place and on April 1, 1973, the responsibility for administering the former Resident Geologists' Section of the Geological Branch was transferred to the field organization. The Geological Branch, however, continues to provide technical support and guidance through the Regional and Resident Geologists' Technical Committee chaired by the Chief of the Geoservices Section.

For administrative reasons, the Province is organized into eight regions, each managed by a central regional Ministry office. Regional Geologists are located in the following centres: Kenora, Thunder Bay, Sault Ste. Marie, Timmins, London, and Richmond Hill. Huntsville and Kemptville will be staffed shortly.

In addition, a Resident Geologist, reporting directly to the Regional Geologist, is stationed in Red Lake, Sioux Lookout, Sudbury, and Kirkland Lake.

The Regional and Resident Geologists are primarily concerned with collecting and disseminating information on the geology and mineral resources in their areas. They are part of a regional management team charged with the responsibility of resource management. They maintain a library of published and unpublished reports, and other documents of geological and mining interest, including: records of exploration activity submitted for assessment work credits; company prospectuses and reports from the files of the Ontario Securities Commission; reports of property visits by staff geologists; information received directly from companies and individuals; and various news items. Also in each library are microfiche copies of the Ontario Index of Geoscience Data, 1971. Each Regional and Resident Geologist and his records are available for consultation without charge.

This report summarizes the activities of Regional and Resident Geologists and is an account of mining and exploration activities in Ontario during the year. For the convenience of the reader, it also provides listings of new additions to the records, including reports of government survey and university-sponsored projects.

The Annual Report was prepared from geoscience information collected and filed in 1973 and was written entirely within the organizational framework of the former Resident Geologists' Section. Thus all data contained herein relates to the old Resident Geologists' districts.

Numerous staff changes and additions occurred in 1973 and in the early part of 1974; these are recorded in the introductory remarks of each section.

Miss Shirley Gibson wrote the section on Southern Ontario from a summary of activities supplied by U.J. Vagners and R.J. Beards, Regional Geologists at Richmond Hill and London, respectively.

C.R. Kustra,
Chief, Geoservices Section.

LOCATION	ADDRESS	TEL. NO.
RED LAKE	ONTARIO GOVT. BLDG.	727-2252
KENORA	808 ROBERTSON ST.	468-9085
THUNDER BAY	179 S. ALGOMA ST.	345-1438
SAULT STE MARIE	370 LAKE ST.	254-1791
SUDBURY	1540B LASALLE BLVD.	566-2580
TIMMINS	60 WILSON AVE.	267-1401
KIRKLAND LAKE	4 GOVERNMENT RD. E.	567-5241
LONDON	458 CENTRAL AVE.	433-8431
RICHMOND HILL	10670 YONGE ST.	884-9203

1973

LOCATION OF REGIONAL AND RESIDENT GEOLOGISTS

ONTARIO DIVISION OF MINES
MINISTRY OF NATURAL RESOURCES

Revised to March, 1973

ODM, MP 57

REGIONAL GEOLOGISTS' OFFICES		ADDRESS	TEL. NO.
Kenora	- R.C. Beard	808 Robertson St.	468-9085
Thunder Bay	- K.G. Fenwick	179 S. Algoma St.	345-1438
Sault Ste. Marie	- Dr. P.E. Giblin	370 Lake St.	254-1791
Timmins	- E.G. Bright	60 Wilson Ave.	267-1401
London	- R.J. Beards	458 Central Ave.	433-8431
Huntsville	- Dr. U.J. Vagners		
Richmond Hill	- Dr. U.J. Vagners	10670 Yonge St.	884-9203
Kemptville	- Vacant		
RESIDENT GEOLOGISTS'OFFICES			
Red Lake	- A.P. Pryslak	Ontario Govt. Bldg.	727-2252
Sioux Lookout	- P.A. Palonen	18½-4th Ave. N.	737-1291
Kirkland Lake	- H.L. Lovell	4 Government Rd. E.	567-5241
Sudbury	- D.G. Innes	1540 "B" LaSalle Blvd.	566-2580

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KENORA DISTRICT

By

R.C. Beard

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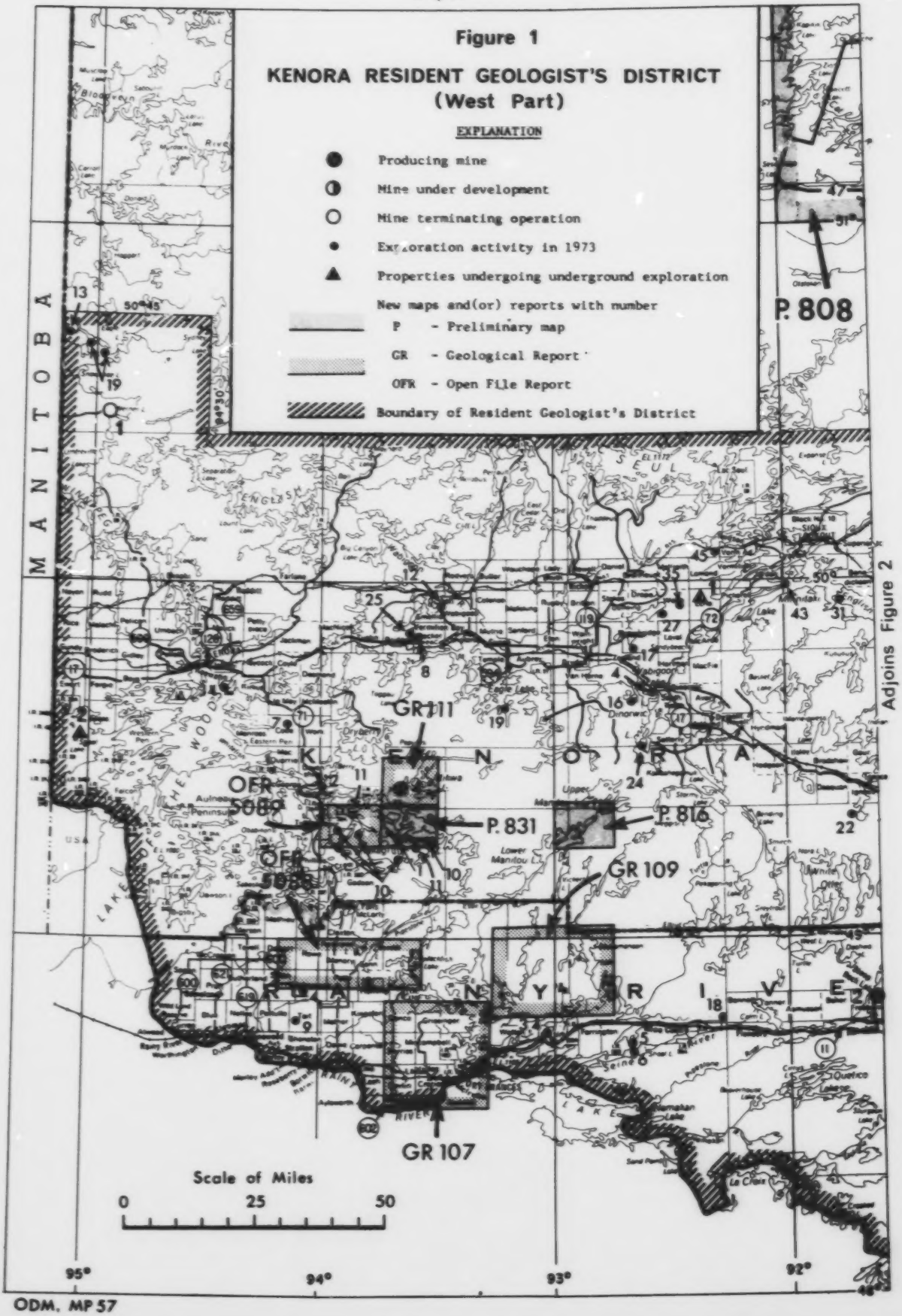
Figure 1
KENORA RESIDENT GEOLOGIST'S DISTRICT
(West Part)
EXPLANATION
Producing mine
Mine under development
Mine terminating operation
Exploration activity in 1973
Properties undergoing underground exploration
New maps and(or) reports with number
P - Preliminary map
GR - Geological Report
OFR - Open File Report
Boundary of Resident Geologist's District
MANITOBA
ENGLISH
LAKE OF THE WOODS
KENORA
RAINY RIVER
LAKE
P. 808
GR 111
OFR 5089
OFR 5088
P. 831
P. 816
GR 109
GR 107
Adjoins Figure 2
Scale of Miles
0
25
50
95°
94°
93°
92°

ODM, MP 57

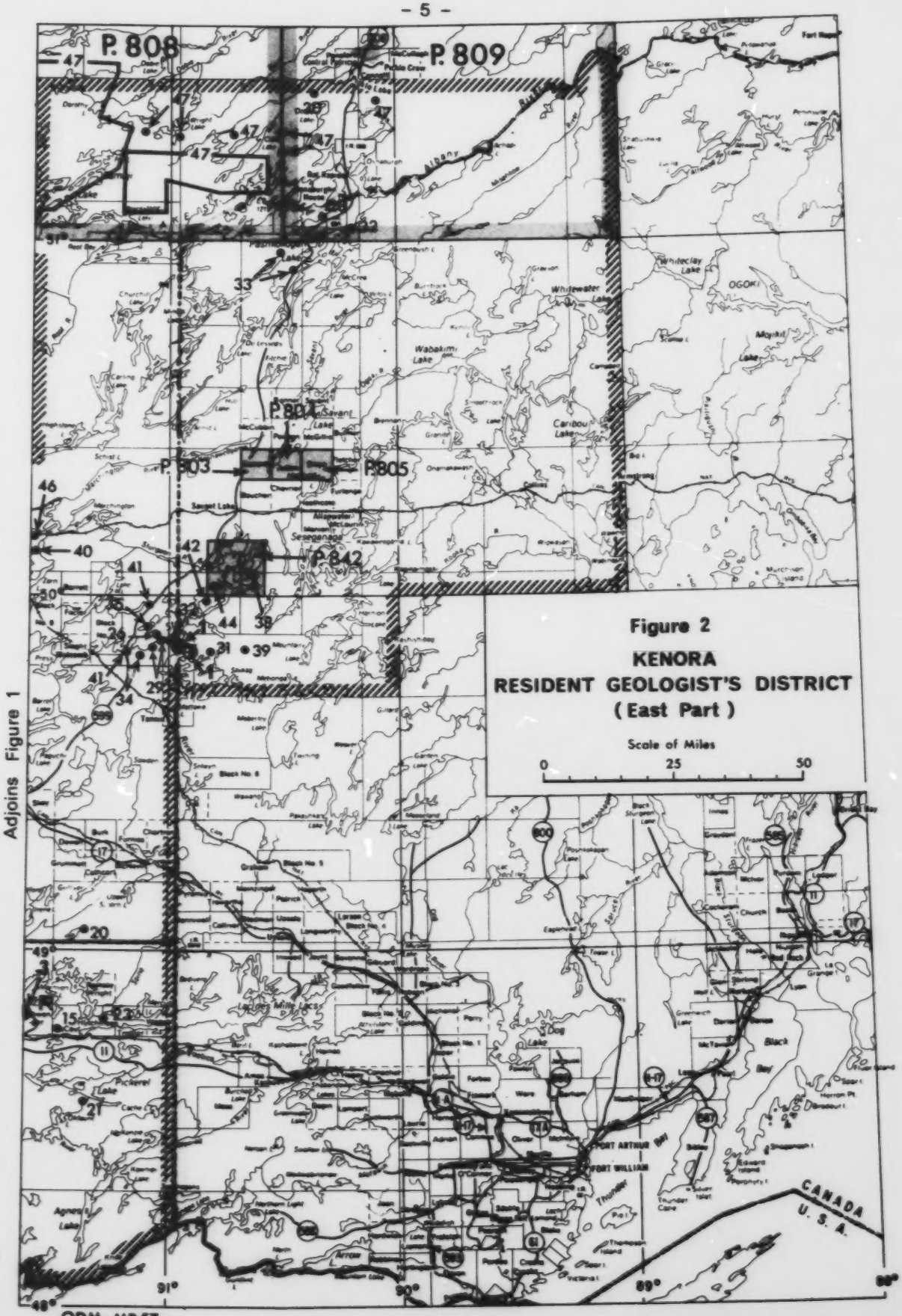

Figure 2

KENORA
RESIDENT GEOLOGIST'S DISTRICT
(East Part)

ODM. MP 57

INDEX TO FIGURE 1 AND 2

● Producing Mines

1.	Mattabi Mines Ltd.	Zn, Cu, Ag, Au
2.	Steep Rock Iron Mines Ltd.	Fe
3.	Caland Ore Company Ltd.	Fe
4.	Maybrun Mines Ltd.	Cu, Au

◑ Mine Under Development

1.	Sturgeon Lake Mines Ltd. (Falconbridge Copper Ltd. and NBU Mines Ltd.)	Zn, Cu, Ag, Au

○ Mine Terminating Operation

1.	Consolidated Canadian Faraday Ltd. (Mining terminated, milling continued)	Ni, Cu

• Exploration Activity in 1973

Keyed to Table 1

▲ Properties Undergoing Underground Exploration

1.	Rayrock Mines Ltd. (Goldlund Mines Ltd. Option)	Au
2.	Consolidated Professor Mines Ltd. (Duport Prospect)	Au

KENORA DISTRICT

By

R.C. Beard[1]

INTRODUCTION

A number of changes took place in the Kenora Resident Geologist's program following the reorganization of the former Department of Mines and Northern Affairs as a division of the new Ministry of Natural Resources in April 1973. The more significant of these changes included opening a new Resident Geologist office in Sioux Lookout, revision of the Resident Geologist district boundaries and the corresponding transfer of assessment files, and a number of staff changes including the addition of the new Resident Geologist in Sioux Lookout.

Under the new Regional organization, the Northwestern Region now has one Resident Geologist located in Red Lake, one Resident Geologist located in the new office in Sioux Lookout, and a Regional Geologist located in Kenora and responsible for the co-ordination and implementation of the regional geological program. The Regional Geologist also functions as Resident Geologist for the Kenora district. All three districts have a permanent geological assistant.

At the Regional Office in Kenora, the writer serves as Regional Geologist, having replaced Leo King who left the Ministry in August 1973. G. Garratt joined the staff as Geological Assistant in November replacing J.D. Werry. One casual assistant was also employed in the office during the summer.

In Red Lake, A.P. Pryslak is Resident Geologist with W. Valliant serving as Geological Assistant. A report of the activities of the Red Lake Resident Geologist's Office is included elsewhere in this publication.

At the time of writing, the new Sioux Lookout office had just been established. P. Palonen was appointed as the new Resident Geologist, to take over the duties in early January 1974. P. Palonen's previous government experience includes three summers with the Ontario Department of Mines and Northern Affairs, on field mapping parties in the Precambrian rocks north of Lake Huron. A. Speed joined the staff as Geological Assistant for the Sioux Lookout office in October 1973.

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[1]Regional Geologist, Ontario Ministry of Natural Resources, Provincial Building, 808 Robertson St., Kenora. Manuscript approved for publication by the Geoservices Section, Geological Branch, Ontario Division of Mines, 4 March 1974.

New Resident Geologist district boundaries became effective at the beginning of 1974 with all assessment files and other data being transferred to the respective offices at that time. Anyone planning to examine assessment files for a specific area or property at any of the Resident Geologists' offices would be well advised to confirm the correct location of the required data by referring to the map showing the new revised boundaries, included elsewhere in this publication.

The major boundary changes are as follows: 1) Kenora district area much reduced. All of Patricia Portion which was formerly part of Kenora Resident Geologist's district is now transferred to Sioux Lookout district. Atikokan area is transferred to Thunder Bay district. 2) Red Lake: south boundary of Red Lake district little changed. Patricia Portion, formerly part of Red Lake district is now transferred to either Sioux Lookout district (Longitude 89° west to Longitude 91° west) or North Central Region at Thunder Bay (Longitude 85° west to Longitude 89° west). Hudson Bay Lowlands section is transferred to Northern Region at Timmins. 3) Sioux Lookout: includes all the Patricia Portion of the former Kenora Resident Geologist district including the Pickle Lake, Sturgeon Lake, and Sioux Lookout areas; also includes that part of the Patricia Portion north of Pickle Lake to the Hudson Bay Lowlands between Longitude 89° west and Longitude 91° west.

The following report of activities for 1973 is based upon the former district boundaries, not the revised boundaries, and includes the Kenora, Atikokan, Sioux Lookout, Sturgeon Lake, and Pickle Crow areas.

REGIONAL GEOLOGIST'S ACTIVITIES

The major functions of the Regional Geologist and his staff in 1973 continued to be the gathering, filing, and compilation of geoscience data related to the district and the dissemination of this data to interested parties, largely through consultations and discussions with mining company personnel and prospectors.

In addition, however, the geological staff has, over the past year, become progressively more involved with providing geoscience input to the Ministry, largely in the field of land use planning activities. In addition to attending the occasional Regional Ministry meetings on land use planning, reports and recommendations on the mineral potential of several areas were provided to the Region during the past year for use for the planning of highways, transportation and other facilities, the planning of parks, and for general land use planning.

A significant part of the Regional Geologist's time is now spent on administrative functions including the preparation for, and attendance at, various meetings and conferences. Over the past year the following committees were served: Regional Management Committee on a monthly basis;

Mines Technical Committee in Toronto on approximately a quarterly basis; Regional/Resident Geologist's Sub-Committee in Toronto on approximately a quarterly basis; ad hoc committee on the reorganization of the Ministry; and the advisory Committee on the Revision of the Mining Act.

In June, several lectures were given to both private and public schools in conjunction with outdoor education programs and in December a review of mining activities in the Northwestern Region was given to one of the Kenora service clubs.

Attendance at conventions, conferences, and on field trips included the following; Prospectors and Developers Association convention in Toronto in March; Canadian Institute of Mining and Metallurgy Convention in Vancouver in April combined with a tour of a number of porphyry copper deposits in British Columbia; a meeting of the Manitoba Mines Branch in Winnipeg reviewing Branch activities in 1973; and attendance at the Mine Rescue Competition in Red Lake.

Visits to producing mines and to properties under development included Mattabi Mines Limited in the Sturgeon Lake area, Campbell Red Lake Mines Limited and Dickenson Mines Limited at Red Lake, and the Goldlund Mines Limited property in Echo Township. The Aulneau Peninsula and Kakagi Lake area, where the University of Manitoba is carrying out an intensive earth sciences research project, were also visited. Brief examinations were made of several old gold deposits located between Nestor Falls and Sioux Narrows.

Work was carried out on several detailed mapping projects and compilations during the year. L. King completed the detailed mapping of the Keewatin-Kenora area at a scale of 1 inch to ½ mile and revisions to the Atikokan-Lakehead Compilation Map (E.G. Pye and K.G. Fenwick 1965, ODM Map 2065) were finalized. As a continuing project, Data Series Maps, consisting of a compilation of all assessment data available for a particular area, were prepared for part of the Sturgeon Lake area.

GEOLOGICAL BRANCH ACTIVITIES

A number of field mapping projects were carried out in the district by geologists of the Precambrian Geology Section during the past summer.

L. Kaye continued detailed mapping near Kakagi Lake to the east of Lake of the Woods. C.E. Blackburn undertook detailed mapping near Upper Manitou Lake. R.B. Barlow carried out and compiled ground magnetic surveys adjacent to the Mattabi Mines Limited near Sturgeon Lake. N.R. Trowell continued detailed mapping near Squaw and Sturgeon Lakes. R.P. Sage, F.W. Breaks, G.M. Stott, and G.M. McWilliams directed a helicopter reconnaissance survey, Operation Ignace-Armstrong, which included the Ignace area and the area north of Mine Centre. W.H. McIlwaine carried out detailed mapping near Sapawe Lake.

A brief report on these and other areas mapped by the Geological Branch in 1973 is given in Ontario Division of Mines, Miscellaneous Paper 56, "Summary of Field Work, 1973, by the Geological Branch", edited by V.G. Milne, D.F. Hewitt, and W.J. Wolfe.

Mineral exploration classes were held in Ignace in October. These classes were conducted by E. Blunden of the Geoscience Information Office, Geoservices Section.

RESEARCH AND MAPPING BY OUTSIDE ORGANIZATIONS

The Centre for Precambrian Studies at the University of Manitoba, under a five-year grant from the National Research Council of Canada, carried out a geoscience research program in northwestern Ontario and eastern Manitoba during the summer of 1973. This program is directed toward understanding the environments in which some of the earliest rocks of the earth formed. A number of field parties from the University of Manitoba carried out the following field programs of geological mapping and geophysical studies:

1) Mapping in the vicinity of Aulneau Peninsula, petrographic and petrochemical studies, and seismic and gravity surveys were carried out to interpret the emplacement history of the Aulneau Batholith.

2) In the Snake Bay-Kakagi Lake area, detailed studies of the mafic volcanic sequence were carried out, including a study of the metal distribution in the lower and middle mafic sequences.

3) At Stormy Lake, east of Manitou Lakes, the volcanic sequence was detailed and a comparison drawn with the Kakagi section.

4) A reconnaissance program was also started in the English River gneissic block north of Kenora. Except for some work around Lake St. Joseph, most of this reconnaissance phase took place in the Red Lake district.

Two McMaster University graduate students also carried out geological studies in the district during the year. One party studied the sedimentary sequence of the Manitou Series whereas the other concentrated on structural studies in the Upper Manitou Lake area.

MINING ACTIVITY AND DEVELOPMENTS

In the Atikokan area, two mines continued to produce iron ore pellets and direct shipping ore in 1973. Caland Ore Company Limited, a subsidiary of Inland Steel Company, began production from its property in Freeborn Township in 1960 and has produced over 25 million tons prior to

January 1973. The Steep Rock Iron Mines Limited property, located in Freeborn and Schwenger Townships, has produced over 39 million tons of ore prior to January 1973, with production from this deposit commencing in 1944. Production from Steep Rock's underground operation was discontinued in late 1973, reportedly due to high costs of underground mining. Production from the open-pit operation continues (Northern Miner, November 29, 1973, p.3).

In the Sturgeon Lake area, Mattabi Mines Limited continued production from their zinc-copper-silver mine. The company reported 1,100,000 tons mined from this open-pit orebody in 1973. Mill capacity is rated at about 3,000 tons per day. Also in the Sturgeon Lake area, Sturgeon Lake Mines Limited began development of its copper-zinc-silver deposit located 5 miles to the east of Mattabi Mines Limited. This ore zone extends across onto the property of Mattagami Lake Mines Limited and an agreement was reached in 1973 whereby Sturgeon Lake Mines Limited purchased two claims containing the orebody extension, with the provision that only open-pit ore is mined (to the 360-foot level) (Northern Miner Press, Canadian Mines Handbook, 1973-1974, p.319). Stripping of this open-pit orebody at a rate of about 13,000 cubic yards per day was started in July 1973 and construction of the 1,200 ton per day mill was well under way at the end of 1973. Production is expected in early 1975.

In the Atikwa Lake area, approximately 40 miles southeast of Kenora, Maybrun Mines Limited commenced production from its copper-gold deposit in mid-1973. Detailed diamond drilling and development work was carried out on this property in the late sixties. In 1970, a 500-ton per day plant was installed and development of the open-pit orebody started, but production was deferred at that time pending improved copper prices. Current production at the end of 1973 was reportedly at a rate of approximately 300 tons per day.

Spurred on by continued high gold prices, several junior mining companies carried out re-evaluation studies on a number of past-producing mines and old prospects in the district over the past year. In Echo Township, near Sioux Lookout, Rayrock Mines Limited optioned the property of Goldlund Mines Limited and carried out an underground sampling program. Earlier work carried out over 20 years ago indicated an average grade of 0.245 oz. gold per ton but the company reports that bulk sampling results from the present program have not substantiated these earlier figures (Northern Miner, October 11, 1973).

Consolidated Professor Mines Limited undertook a similar program on the old Duport prospect on Cameron Island in Shoal Lake, 30 miles southwest of Kenora. The underground workings were pumped out to the 125-foot level and bulk samples taken. The underground program was suspended at the year's end but surface drilling continues.

Consolidated Canadian Faraday Limited terminated mining operations on their nickel-copper deposit in the Werner Lake area in late 1972. Milling operations at the Werner Lake property did continue through 1973, however, processing ore coming from the company's Dumbarton Mines Limited in Manitoba.

Steep Rock Iron Mines Limited continued with their plans to develop the Lake St. Joseph iron deposit south of Pickle Lake. Feasibility studies and market surveys were recently completed, and the company has indicated that this 650-million ton magnetite deposit could be brought into production as early as 1976 (Northern Miner, November 29, 1973, p.3).

With the estimated 800 jobs to be created by this project, coupled with the estimated 300 jobs that could result from the development of the Union Miniere Explorations and Mining Corporation Limited (Umex) Thierry nickel-copper deposit located approximately 60 miles to the north, a provincial study group is looking into the establishment of a new townsite location to serve both projects.

EXPLORATION ACTIVITY

The general level of exploration in the Kenora Resident Geologist's district once again showed a marked decline from the previous year. The number of companies and individuals known to have been active in the district was down to 47 from the 75 reported in 1972; the number of claims staked in the combined Kenora and Patricia Mining Divisions[2] was down 27 percent over the previous year; and the total amount of assessment work reported for the combined Mining Divisions was down 61 percent.

Most of this decrease in activity can be related to the continued decline in base metal exploration, which is best reflected by the activity level in the Patricia Mining Division. Claim staking here was down 55 percent, with 1,496 claims staked in 1973 compared with 3,297 in 1972. The amount of assessment work recorded was down even more, showing a drop of 69 percent over last year, as detailed in Table 1. Although a significant increase in base metal prices occurred in the last several months of 1973, the timing was such that it did not substantially increase the exploration level for the year, but should hopefully be felt in 1974.

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[2]Only part of the Patricia Mining Division falls within the Kenora Resident Geologist's district and separate statistics for this part are not available.

Table 1 - Assessment Work Recorded, Kenora and Patricia Mining Division

WORK PERFORMED	Kenora Mining Division			Patricia Mining Division		
	1971	1972	1973	1971	1972	1973
Manual Labour	638	833	506	750	214	178
Diamond Drilling	51,615	19,781	20,910	174,470	170,231	75,345
Geophysical Surveys	22,040	9,964	13,019	304,756	105,362	14,537
Geological Surveys	360	800	1,798	7,709	17,890	600
Geochemical Surveys			160	440	1,580	390
Power Equipment	853	1,459	509	1,123	525	169
Core Samples, Benefication Studies, Land Surveys, and Assays				510	1,319	121
TOTALS	75,506	32,837	36,902	490,678	297,121	91,340

One of the few bright spots in an otherwise rather bleak picture was the Kenora Mining Division, which encompassed the southern part of the Kenora Resident Geologist's district. The activity level actually showed an increase here, apparently due to the continued high gold prices throughout the year. Staking was up a significant 37 percent with 1,920 claims staked in 1973 as compared to 1,398 in 1972. The amount of assessment work recorded was, however, up only 12 percent. It appears that a large number of old gold showings in the district were restaked and a minimum amount of work done on them during the year. Few extensive and serious programs have yet been carried out.

Whereas the current high price of gold did encourage several junior companies to undertake extensive re-evaluation programs on a number of the old gold properties (most notably the programs by Rayrock Mines Limited and Consolidated Professor Mines Limited), gold exploration in the Kenora district did not jump ahead in 1973 to the extent many had hoped for. The reasons for this continued lack of optimism on the part of industry are complex but hopefully another year of continued high gold prices will provide the price stability required by many investors.

Sturgeon Lake continued to be one of the more active areas in the district during 1973. A number of major companies including Amax Exploration, Incorporated, Falconbridge Nickel Mines Limited, Imperial Oil Limited, Rio Tinto Canadian Exploration Limited, Mattagami Lake Mines Limited, and Phelps Dodge Corporation of Canada Limited, as well as several juniors, carried out programs in the area. Most of the work reported consisted of diamond drilling.

Union Miniere Explorations and Mining Corporation Limited (Umex) continued exploration in the Pickle Lake-Bamaji Lake areas, following their discovery of the Thierry copper-nickel deposit in 1970. Work by Umex, mostly diamond drilling, was reported over a wide area during the year. Other workers engaged in the area were The Hanna Mining Company, Falconbridge Nickel Mines Limited, The Algoma Steel Corporation Limited, and Bayard Resources Limited.

In the Sioux Lookout area, some diamond drilling, mostly by individuals, was recorded.

Work was reported on ten separate properties in the Vermilion Bay-Dryden-Wabigoon area. Most of this work was again by individual prospectors and consisted largely of stripping, trenching, and diamond drilling, although several major and junior companies also carried out work in the area.

Southeast of Kenora, in the Rowan, Kakagi, and Dogpaw Lake areas, Hudson Bay Oil and Gas Limited was engaged in an exploration program oriented largely towards base metals whereas Noranda Exploration Company Limited investigated a number of old gold deposits.

Farther south, in the Rainy River area, limited work was recorded on ten properties, by both individuals and companies.

A more detailed list of companies and individuals known to have been engaged in exploration activity in the district in 1973, with a brief summary of the type and location of the work, is given in Table 2. The numbers preceding the names of companies or individuals on Table 2 are keyed to the map of the Kenora Resident Geologist's district (Figure 1 and Figure 2).

ACCESS ROADS

Improvements have been made on the Alcona forest access road (Highway 642). This road, completed in the fall of 1972, links Sioux Lookout with the Sturgeon Lake area.

The Manitou access road has been extended from the junction at Highway 11 to approximately the northern end of Vickers Lake, a distance of 37.5 miles.

NEW ODM MAPS AND REPORTS ISSUED IN 1973

Publications pertaining to the Kenora district and issued during 1973 are listed in the following section. Figures 1 and 2 show the location of areas in the district for which new maps and reports have been issued by the Ontario Division of Mines, Ministry of Natural Resources.

Map 2263 Fort Frances, Rainy River District (52 C/11,12,13,14). Geology by J.C. Davies and assistants, 1964. Scale, 1 inch to 1 mile.

Map 2266 Otukamamoan Lake, Kenora and Rainy River Districts (52 C/14, 15; 52 F/2,3). Geology by C.E. Blackburn and assistants, 1970. Scale, 1 inch to 1 mile.

Map 2273 Atikwa Lake, District of Kenora (52 F/5), Geology by J.C. Davies. Scale, 1 inch to ½ mile.

P.803 Conant Township, District of Thunder Bay (52 J/7E). Geology by W.D. Bond and assistants, 1972. Scale, 1 inch to ½ mile.

P.804 Jutten Township, District of Thunder Bay (52 J/7E, 8W). Geology by W.D. Bond and assistants, 1972. Scale, 1 inch to ½ mile.

P.805 Smye Township, District of Thunder Bay (52 J/8W). Geology by W.D. Bond and assistants, 1972. Scale, 1 inch to ½ mile.

P.808 Operation Pickle Lake: Bamaji Lake-Lake St. Joseph Sheet, District of Kenora (Patricia Portion) (520). Geology by R.P. Sage, F.W. Breaks, W.R. Troup and assistants, 1972. Scale, 1 inch to 2 miles.

P.809 Operation Pickle Lake: Achapi Lake-Misehkow River Sheet, District of Kenora (Patricia Portion) (520, 52P). Geology by R.P. Sage, F.W. Breaks, W.R. Troup and assistants, 1972. Scale, 1 inch to 1 mile.

P.816 Lower Manitou-Uphill Lakes area, District of Kenora (52 F/7). Geology by C.E. Blackburn and assistants, 1972. Scale, 1 inch to ½ mile.

P.831 Rowan Lake Area, District of Kenora (52 F/SE). Geology by L. Kaye and assistants, 1972. Scale, 1 inch to ½ mile.

P.842 Squaw Lake-Sturgeon Lake Area, District of Thunder Bay (52 J/2). Geology by N.F. Trowell and assistants, 1972. Scale, 1 inch to ½ mile.

P.845 Summary of Airborne Geophysical Data for Northwestern Ontario on file at the Resident Geologist's Offices at Kenora, Red Lake and Thunder Bay (42, 43, 44, 52, 53, 54), Data Series Map. Compilation by R.A. Riley, H.L. King, and C.R. Kustra, 1970, 1971, 1972. Scale, 1 inch to 16 miles.

GR107 Geology of the Fort Frances Area, District of Rainy River (52 C/11, 12, 13, 14), by J.C. Davies, 35p., 1 table, 6 figures, 10 photos. Accompanied by Map 2263, scale 1 inch to 1 mile.

GR109 Geology of the Otukamamoan Lake Area, Districts of Rainy River and Kenora (52 C/14, 15; 52 F/2, 3) by C.E. Blackburn, 43p., 3 tables, 6 figures, 12 photos. Accompanied by Map 2266. Scale, 1 inch to 1 mile.

GR111 Geology of the Atikwa Lake Area, District of Kenora (52 F/5) by J.C. Davies, 58p., 2 tables, 8 figures, 9 photos. Accompanied by Map 2273. Scale, 1 inch to 1 mile.

OFR5088 Geology of the Off Lake-Burditt Lake Area, District of Rainy River (52 C/12, C/13, D/9, D/16) by C.E. Blackburn, 114p., 8 figures, 3 tables, 17 photos. (Xerox copies) 2 maps.

OFR5089 Geology of the Cedartree Lake Area, District of Kenora (52 F/5W) by J.A. Morin and J.C. Davies, 112p., 8 figures, 2 tables, 11 photos (Xerox copies) and 1 map, scale 1 inch to ¼ mile.

OFR5091 (Part 2) Geochemical Report No. 1, part 3. Gold in the Early Precambrian Superior Province Plutonic Rocks: The Relation between Geochemical Abundance and Concentration to Exploitable Levels, Districts of Kenora, Thunder Bay, Algoma, and Timiskaming (52, 42), by W.J. Wolfe, 16p., 3 figures, 1 table.

OFR5094 Index to 1972 Assessment Work Reports Approved by the end of 1972, Ontario (31, 32, 41, 42, 48, 52, 53), by Geoscience Data Centre. Part 1, 104p.; Part 2, 40p.

MRC13 Reprint Gold Deposits in Ontario, Part 1, Districts of Algoma, Cochrane, Kenora, Rainy River and Thunder Bay (32, 41, 42, 43, 52, 53), by S.A. Ferguson, H.A. Groen and R. Haynes, 315p., 9 figures, 1 table.

IMR41 Mineral Fillers, by D.F. Hewitt, 13p.

MP12 The Study of Minerals and Rocks, Practical Geology and Mineralogy for Prospectors, by E.M. Burwash, Seventh Edition 1969, reprinted 1973, 22p.

MP54 Annual Report of Resident Geologist's Section, Geological Branch, 1972, edited by E.G. Pye. Approximately 200p., 18 figures, 18 tables.

MP55 Mineral Exploration Topics, by S.A. Ferguson, E.B. Freeman, E.C. Blunden, D.S. Andrews, O.H. Bjarnason, J.A. McCance and E.C. Hamilton, 173p., 13 tables, 17 figures, 1 photo.

MP56 Summary of Field Work, 1973, by the Geological Branch (30, 31, 32, 40, 41, 42, 52). Edited by V.G. Milne, D.F. Hewitt and W.J. Wolfe 201p. plus various figures and key maps.

Annual Review of the Mineral Industry, 1972, 85p.

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Supplement to Bulletin 25, Eleventh Edition, List of Publications 1966-1972, compiled by Geoscience Data Centre, Geological Branch, 86p., 2 figures. Accompanied by Map 2229, Aeromagnetic Index of Ontario, scale 1 inch to 30 miles.

Index Maps Showing Ontario Division of Mines Geological Map Coverage of Ontario, revised to December 1972. Scale, 1 inch to 16 miles.

Ontario Division of Mines Publications Price List, November 1973, 27p. prepared by Mines Publication Office

Aeromagnetic coverage of Ontario. Film positive overlay of the ODM-GSC 1 inch = 16 miles aeromagnetic coverage keyed to the ODM 1 inch = 16 miles Geological Atlas.

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AND REFERENCES

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1972: Mineralization in the Canoe Lake Stock, Lake of the Woods Area, Northwestern Ontario; unpublished M.Sc. Thesis, Univ. of Manitoba, Winnipeg.

Franklin, J.M.; Gibb, W.; Kerr, B.; Tammam, A.O.
1973: Guide to the Mattabi Massive Sulphide Deposit, Unpublished. 19p.

Verbeek, T.; Dehenne, R.; Bowdidge, C.
1972: Geophysical Case-History: The Thierry Copper & Nickel Deposit in Northwestern Ontario. Paper presented at the 24th International Geological Congress, 1972, Montreal, 18p.

Table 2 Exploration Activity in 1973

The following is a list of individuals and companies known to be engaged in exploration within the Kenora District in 1973, and the type of work undertaken in each case. The numbers correspond to the numbered areas on Figures 1 and 2.

	Individual or Company	Type of Work
	Kenora Mining Division	
1.	Aggressive Mining Ltd.	RADEM survey in the Rowan Lake area.
2.	Amax Exploration,Inc.	Diamond drilling in Willingdon Township.
3.	Belacoma Mines Ltd.	Diamond drilling and trenching in Halkirk Township.
4.	Canadian Nickel Co. Ltd.	Ground magnetometer survey in Southworth Township; diamond drilling in Richardson and Halkirk Townships.
5.	Ciglen Investments Ltd.	Ground electromagnetic and magnetometer surveys in the Grassy Lake area.
6.	Cone, Russell	Diamond drilling and trenching in the Grassy Lake area.
7.	Cone Exploration (Canada) Ltd.	Ground electromagnetic and magnetometer surveys and line cutting in Code Township.
8.	Herbacz, Leo	Manual stripping in Docker Township.
9.	Hudson Bay Exploration and Development Co. Ltd.	Diamond drilling in Tait Township.
10.	Hudson Bay Oil and Gas Ltd.	Diamond drilling in the Brooks Lake and Dogpaw Lake areas and diamond drilling on the Amax Option in the Rowan Lake area.
11.	Kuryliw, Chester J.	Geological survey in the Dogpaw Lake and Rowan Lake areas.
12.	MacLeod, James M.	Trenching and blasting in Smellie Township.
13.	Miller, K. G.	Diamond drilling in the Hickaby Lake area.
14.	Minami Gold Mines Ltd.	Ground electromagnetic and magnetometer surveys in the Bigstone Bay area.
15.	Monteagle Explorations Ltd. Mont Resources Ltd.)	Ground electromagnetic and magnetometer surveys and line cutting on the Staines option in McCaul Township.
16.	Nichro Mines Limited	Diamond drilling in the Contact Bay area.
17.	Phelps Dodge Corporation of Canada Ltd.	Ground electromagnetic survey on the Petrunka Option in Brownridge Township.
18.	Rivers, Ernest J.	Trenching in the Reed Lake area.
19.	Selco Mining Corp. Ltd.	Diamond drilling on the Doak Option in the Buchan Bay area. Ground magnetometer survey and line cutting in the Eagle Lake and Hickaby Lake areas.
20.	Teckora Mines Ltd.	Ground electromagnetic and induced polarization surveys in the Norway Lake area.
21.	Thew, Roger	Ground magnetometer and electromagnetic surveys in the Pickerel Lake area.
22.	Tudale Exploration Ltd.	Diamond drilling on the Lesavage Option in the McNamara Lake area.
23.	Wicherux, Michael	Stripping in Hutchinson Township.
24.	Whitewater Gold Mines Ltd.	Ground magnetometer and electromagnetic surveys in the Turtlepond Lake area.
25.	Ysenbaert, Albert	Stripping in Bridges Township.
	Patricia Mining Division	
26.	Addicks, Mentor C.	Diamond drilling in the southwest part of the Sturgeon Lake area.
27.	Alberts, Victor	Diamond drilling in Webb Township.
28.	Algoma Steel Corp. Ltd., The	Diamond drilling in the Rioch Lake area.
29.	Amax Exploration, Inc.	Diamond drilling on the Darnwater - George and Thompson Options in the Sturgeon Lake area.
30.	Bayard Resources Ltd. (formerly Transterre Explorations Ltd.)	Diamond drilling in the Kapkichi - Pickle Lake area.
31.	Denison Mines Ltd.	Diamond drilling in the Parnes Lake area.
32.	Falconbridge Nickel Mines Ltd.	Diamond drilling in the Sturgeon Lake and Caron Lake areas.
33.	Hanna Mining Co., The	Diamond drilling in the Pashkokogan Lake and Doran Lake areas.
34.	Imperial Oil Limited	Diamond drilling on the Consolidated Morrison and Prudent Options in the Valora Lake area.
35.	Kozowy, Alex	Trenching in Webb Township.
36.	Mattagami Lake Mines Ltd.	Diamond drilling in the Sturgeon Lake area.
37.	Newconex Canadian Exploration Ltd.	Diamond drilling on the Canadare Option in the Bell and Shikag Lakes area.
38.	Phelps Dodge Corporation of Canada Ltd.	Ground electromagnetic and magnetometer surveys in the Squaw Lake area.

	Individual or Company	Type of Work
39.	Plaskett, Gordon	Ground electromagnetic survey in the Bell and Shikag Lakes area.
40.	Regan, F. V.	Diamond drilling in the Sharron Lake area.
41.	Rio Tinto Canadian Exploration Ltd.	Ground electromagnetic survey on the Tough Option in the Penassi Lake area. Ground electromagnetic and magnetometer surveys on the Madsen Options in the Sturgeon Lake area.
42.	Santa Maria Mines Ltd.	Diamond drilling and magnetometer and geological surveys on the J. Paul Ducharme Option in the Sixmile Lake area.
43.	Shilo Mines Ltd.	Ground magnetometer survey in the Parnes Lake area.
44.	Silverside Mines Ltd.	Diamond drilling in the Fourbay Lake area.
45.	Smith, Stephen	Diamond drilling in the Whipper Lake area.
46.	Thompson, Walter M.	Diamond drilling in the Sharron Lake area.
47.	Union Minière Explorations and Mining Corp. Ltd.	Diamond drilling in the Caley Lake, Wright Lake, Kawashe Lake and Pickle - Crow areas. Air magnetometer survey in the Crobie area.

Table 3 Assessment Work Received in 1973

Abbreviations:

Air	-	Airborne	Mag	-	Magnetometer Survey
5 DDH (620')	-	5 Diamond drill holes totalling 620'	Rad	-	Radiometric Survey
EM	-	Electromagnetic Survey	Geochem	-	Geochemical Survey
IP	-	Induced Polarization Survey	Res	-	Resistivity Survey
Geol	-	Geological Survey			

Location	Ownership	Commodity Found	Assessment Work	NTS	Toronto File
		KENORA MINING DIVISION			
Bridges Tp.	Ysenbaert, Albert	Py, Po, Zn, U	1973 stripping	52P/13SE	
Brownridge Tp.	Phelps Dodge Corp. of Canada Ltd.		1973 EM	52P/15SE	
Code Tp.	Dome Exploration (Canada) Ltd.		1972 Air Mag	52K/9 SE	2.1081
Docker Tp.	Herbacz, Leo	Py, Po, Ni	1973 stripping	52P/13SE	
Glass Tp.	Kuryliw, Raymond		1972 Mag, EM	52K/10SW	
Halkirk Tp.	Cousineau, Louis		1972 stripping & trenching 1973 stripping & trenching	52C/11NE	
	Belacoma Mines Ltd.	Py, Po, Cu, Fe	1973 1 DDH (386')	52C/10NW	
	Belacoma Mines Ltd.	Ti, Fe, Cu	1973 2 DDH (601'), trenching	52C/11NE	
	Border Cities Ready Mix		1972 Mag, EM	52C/11NE	
Halkirk & Farrington Tps.	Canadian Nickel Co. Ltd.	Py, Po, Cu	1973 1 DDH (305')	52C/11NE	
Hutchinson Tp.	Wicheruk, Michael		1973 stripping	52B/14SW	
Richardson Tp.	Canadian Nickel Co. Ltd.		1973 1 DDH (298')	52D/16SE	
Smellie Tp.	MacLeod, James R.		1972-73 trenching, blasting	52P/13NE	
Southworth Tp.	Canadian Nickle Co. Ltd.		1973 Mag	52P/10NE	
Tait Tp.	Hudson Bay Exploration and Development Co. Ltd.		1973 1 DDH (401')	52D/16SE	
Watten Tp.	Noranda Exploration Co. Ltd.	Py, Po, Cu.	1972 2 DDH (635')	52C/11NE	
	Border Cities Ready Mix		1972 Mag, EM	52C/11NE	
	Noranda Exploration Co. Ltd.	Cu	1972 2 DDH (635')	52C/11NE	
Willingdon Tp.	Amax Exploration Inc.		1973 1 DDH (250')	52K/8NE	
	Canadian Nickel Co.Ltd.	Cu (trace), Zn (trace)	1972 1 DDH (186')	52K/8NE	
Bending Lake	Canadian Nickel Co.Ltd.	Cu, Zn	1972 1 DDH (171')	52P/8SE	
Bigstone Bay	Minaki Gold Mines Ltd.	Au, Ag, Cu, Zn, Pb.	1973 Mag, EM	52K/9NW	2.1229
Brooks Lake	Amax Exploration Inc.		1971 Geol	52P/4NE	2.1168
	Hudson Bay Oil & Gas Ltd.		1973 2 DDH (451')	52P/4NE	
Bushan Bay	Selco Mining Corp. Ltd.	Cu	1973 1 DDH (357') 1973 Mag 1972 Mag 1972 Mag	52P/11NE 52P/11NE 52P/11NE 52P/11NE	 2.994 2.995 2.996

Location	Ownership	Commodity Pound	Assessment Work	NTS	Toronto File
Butler Lake	Canadian Nickel Co. Ltd.	Cu (trace)	1972 1 DDH (427')	52F/10NE	
Contact Bay	Nichro Mines Ltd.	Cu, Asb.	1973 21 DDH (3081')	52F/10NW	
	Nichro Mines Ltd.	Cu	1971 1 DDH (180')	52F/10NW	
Dogpaw Lake	Canadian Nickel Co. Ltd.	Pb, Cu(trace), Zn(trace)	1972 1 DDH (215')	52P/5SW	
	Hudson Bay Oil & Gas Ltd.		1973 9 DDH (3586') 1972 Mag, EM, Geol, Geochem	52P/5SW 52P/5SW	2.1103
Grassy Lake	Cone, Russell	Cu	1973 1 DDH (198') 1973 Stripping, blasting	52C/10NE 52C/10NE	
Heronry Lake	Hudson Bay Oil & Gas Ltd.		1972 Mag, EM, Geol, Geochem	52P/4NW	
Mang Lake	Canadian Nickel Co.Ltd.	Zn, Cu	1972 1 DDH (307')	52P/2NW	
McNamara Lake	Tudale Exploration Ltd.		1973 2 DDH (803') 1972 EM	52G/5SE 52G/5SE	2.1009
Norway Lake	Teckora Mines Ltd.		1973 EM, IP	52C/3SW	2.1208
Pickerel Lake	Thew, Roger		1972 1 DDH (84') 1972-73 Mag, EM	52B/11NW 52B/11NW	2.1251
Reed Lake	Rivers, Ernest J.		1973 Trenching	52C/16SW&SE	
Rickaby Lake	Millier, K. G.	Cu	1973 2 DDH (205') 1972 1 DDH (100')	52L/11NE 52L/11NE	
Rowan Lake	Aggressive Mining Ltd.		1973 EM	52F/5SE	2.1294
	Amax Exploration, Inc.		1972 Mag	52F/5SE	2.999
	Canadian Nickel Co. Ltd.		1972 2 DDH (1512')	52F/5SE	
	Canex Placer Ltd.		1973 3 DDH (1511')	52F/5SE	
	Hudson Bay Oil & Gas Ltd.	Cu	1973 2 DDH (914')	52F/5SE	
Sabawi Lake	Monteagle Explorations Ltd.		1973 EM, Mag. 1973 Mag, EM	52B/14SW 52B/14SW	2.1239 2.1176
Shoal Lake	Kuryliw, Raymond		1972 Mag, EM	52E/10SW	2.1139
Wapageisi Lake	Canadian Nickel Co. Ltd.	Cu, Zn	1972 2 DDH (297')	52F/8SW	
Whitefish Bay	Dome Exploration (Canada) Ltd.		1972 Air Mag	52E/9SE	2.1081
	Kuryliw, Chester		1972 Mag, EM	52E/9SW	2.1138
Wiley Bay	Kuryliw, Chester		1972 Mag, EM	52E/10SE	2.1138
		Patricia Mining Division			
Echo Tp.	Kuryliw, Chester		1972 Mag, Geol	52F/16NW	2.1003
Jutten Tp.	Donner, John		1972 EM	52J/7NE	2.1195
Lomond Tp.	Canadian Nickel Co. Ltd.	Cu (trace)	1972 1 DDH (131')	52K/1SW	
Webb Tp.	Alberts, Victor		1973 1 DDH (108')	52P/16NW & 15NE	
	Kozawy, Alex		1973 Trenching	52P/16NW	
Bell & Shikag Lakes	Canex Aerial Exploration Ltd.		1972 Mag, EM, Geol	52G/15SW	2.1028
	Lyon Lake Mines Ltd.	Cu (trace)	1972 1 DDH (496')	52G/15SW	
	Newconex Canadian Exploration Ltd.	Cu	1973 5 DDH (1807')	52G/15SW	
	Plaskett, Gordon		1973 EM	52G/15SE	2.1178
	Sturgeon Lake Mines Ltd.		1972 IP, Res	52G/15SW	2.1145
Caley Lake	Union Miniere Exploration and Mining Corp. Ltd.	Cu	1973 5 DDH (1248')	52O/7SE	
Caron Lake	Falconbridge Nickel Mines Ltd.		1973 3 DDH (905') 1972 2 DDH (533')	52O/15E 52O/15E	
Doran Lake	Hanna Mining Co., The		1973 4 DDH (865')	52J/15NE	
Drum Lake	Cochenour Willans Gold Mines Ltd.	Cu, Zn	1972 Mag, EM 1972 1 DDH (150')	52O/13NE 52O/13NE	2.1083

Location	Ownership	Commodity Found	Assessment Work	NTS	Toronto File
Fourbay Lake	Campaign Mining Co.Ltd.		1972 Geol	52J/2SW	2.1144
	Dome Exploration (Canada) Ltd.		1972 Mag, EM	52J/2SW	2.1060
	Granges Exploration (Canada) Aktiebolag		1972 EM	52J/2SW	2.952
	Hartland Mines Ltd.		1972 Geol	52J/2SW	2.1144
	Norther Management Ltd.		1972 EM	52J/2SW	2.1122
	Premier Gaspe Mines Ltd.		1972 Mag, EM 1972 1 DDH (148')	52J/2SW 52J/2SW	2.1068
	Silverside Mines Ltd.	Py, Po	1973 3 DDH (600') 1971 Geol 1971 Mag, EM	52J/2SW 52J/2SW 52J/2SW	2.1037 2.942
Fry Lake	Cochenour Willans Gold Mines Ltd.		1972 Mag, EM 1971 Mag, EM	52O/3NW 52O/3NW	2.1083 2.965
Grebe Lake	Prieston, Ernest		1972 Trenching	52J/7NE	
Handcuff Lake	Hartland Mines Ltd.		1972 Geol	52J/2SW	2.1144
Kapkichi Lake	Transterre Explorations Ltd.		1971 Geol, Mag, EM 1972 Mag, EM	52O/8NW	2.1000
Kawashe Lake	Cochenour Willans Gold Mines Ltd.		1972 Mag, EM 1972 11 DDH (1672')	52O/6SE 52O/6SE	2.1083
	Union Miniere Explorations and Mining Corp. Ltd.	Cu	1973 5 DDH (1202')	52O/6SE	
Neen Lake	Union Miniere Explorations and Mining Corp. Ltd.		1972 1 DDH (250')	52O/6NW	
Nabemakoseka Lake	Cochenour Willans Gold Mines Ltd.		1971 Mag, EM	52O/6SW	2.965
	Cochenour Willans Gold Mines Ltd.		1972 Mag, EM	52O/6SW	2.1083
	Cochenour Willans Gold Mines Ltd.	Cu, Zn, Pb	1972 4 DDH (553')	52O/6SW	
Parnes Lake	Denison Mines Ltd.	Cu	1973 2 DDH (505')	52O/13NW	
	Shilo Mines Ltd.		1973 Mag	52O/13NW	
	Shilo Mines Ltd.		1972 Mag, EM	52O/13NW	2.1182
Pashkokogan Lake	Hanna Mining Company, The	Cu	1973 16 DDH (3954')	52J/16NW	
Penassi Lake	Granges Exploration (Canada) Aktiebolag		1972 EM	52O/14NE	2.952
	Hartland Mines Ltd.		1972 Geol	52O/14NE	2.1152
	Rio Tinto Canadian Exploration Ltd.		1972 EM 1973 EM	52O/14NE	2.1165
Pickle Crow	Transterre Explorations Ltd.		1971 Geol 1972 Mag, EM	52O/8NE	2.1001
	Union Miniere Exploration and Mining Corp. Ltd.	Cu, Zn	1973 1 DDH (196') 1972 1 DDH (300')	52O/8NE 52O/8NE	
Quest Lake	Selco Mining Corp. Ltd. & Calmor Iron Bay Mines Ltd.		1971 Air Mag	52O/15NE	2.982
Riach Lake	The Algoma Steel Corp. Ltd.	FE FE, Cu	1973 3 DDH (773') 1972 6 DDH (1815')	52O/12W 52O/12W	
Sharron Lake	Regan, P. V.	Au	1973 2 DDH (205')	52J/4NE	
	Thompson, Walter		1972 1 DDH (101') 1973 4 DDH (647')	52J/4NE	
Sixmile Lake	Amax Exploration Inc.	Py, Po, Cu	1970 Geol 1971 2 DDH (906')	52O/15NW 52O/15NW	2.1072
	Canex Aerial Exploration Ltd.	Cu, Zn (trace)	1972 EM, Geol 1972 4 DDH (1862') 1972 Mag, EM, Geol	52O/15NW 52O/15NW 52O/15NW	2.1071 2.1038
	Comwest Exploration Co. Ltd.		1972 Geol	52O/15NW	2.1036
	Dome Exploration (Canada) Ltd.		1972 Mag, EM	52O/15NW	2.1060
	Falconbridge Nickel Mines Ltd.	Py, Po, Graph.	1973 5 DDH (2980')	52O/15NW	
	Granges Exploration (Canada) Aktiebolag		1972 EM	52O/15NW	2.952
	Norther Management Ltd.		1972 EM	52O/15NW	2.1122
	Rio Tinto Candian Exploration Ltd.	Cu	1972 5 DDH (2475')	52O/15NW	

Location	Ownership	Commodity Found	Assessment Work	NTS	Toronto File
Sixmile Lake	Santa Maria Mines Ltd.	Py	1973 2 DDH (202')	52G/15NW	
	Selco Mining Corp. Ltd. and Calmor Iron Bay Mines Ltd.		1971 Air Mag	52G/15NW	2.982
	Sturdy Mines Ltd. and Texmont Mines Ltd.		1972 Mag, EM	52G/15NW	2.1091
Smock Lake	Noranda Exploration Co. Ltd.	Cu, Zn (trace)	1971 2 DDH (519')	52G/13NE	
SW Sturgeon Lake	Addicks, Mentor	Py, Po, Cu	1973 1 DDH (400')	52G/14SE	
	Amax Exploration Inc.	Py, Fe, Zn, Cu, Ag	1973 5 DDH (3282') 1970 EM, Geol	52G/14SE 52G/14SE	2.1030
	Ideal Bay Explorations Ltd.		1972 Rad	52G/14SE	2.972
	Imperial Oil Ltd.	Cu, Zn	1972 5 DDH (2676')	52G/14SE	
	Rio Tinto Canadian Exploration Ltd.		1972 EM 1973 Mag, EM 1972 Mag, EM, Geol	52G/14SE 52G/14SE	2.1167 2.1023
	Urban Quebec Mines Ltd.		1972 Trenching	52G/14SE	
Squaw Lake	Phelps Dodge Corp. of Canada Ltd.		1973 Mag, EM	52J/2SE	2.1220
	Royex Mining Ltd.		1972 Mag, EM	52J/3SE	2.1049
Valora Lake	Imperial Oil Ltd.	Zn, Cu	1973 4 DDH (2289')	52G/14SE	
	Rio Tinto Canadian Exploration Ltd.		1972 Mag, EM, Geol	52G/14SE	2.1167
Valora & Press Lakes	Scurry-Rainbow Oil Ltd.		1973 7 DDH (2692')	52G/14SE & SW	
Vermilion Tp.	Canadian Nickel Co. Ltd.	Fe, Cu, Zn (trace)	1972 1 DDH (597')	52K/1SE	
Wesleyan Lake	Cochenour Willans Gold Mines Ltd.		1972 1 DDH (150')	52O/4NE	
Whipper Lake	Smith, Stephen	Cu	1973 3 DDH (332')	52K/1SW	
Wright Lake	Union Miniere Explorations and Mining Corp.Ltd.	Zn, Cu, Py, Po	1972 10 DDH (5030') 1973 1 DDH (248')	52O/7SW 52O/7SW	

Table 4 Other Information Received in 1973

Location	Ownership	Commodity Found	Date Filed	NTS	Toronto File No.
			KENORA MINING DIVISION		
Bridges Tp.	Mallery, F.		1955 2 DDH (90')	52F/13SE	
Bridges Tp.	Noranda Exploration Co. Ltd.	U	1967 Mag. Rad. Geol. trenching 1968 4 DDH (1384.5')	52F/13SE	
Bridges Tp.	Stephens, C. S.	U	1968 trenching	52F/13SE	
Bridges Tp.	Wilson, Art		1955 1 DDH (146') trenching	52F/13SE	
Brownridge - Laval Tps.	Petrunka, David		Approval of assessment work credits	52F/15	
Docker Tp.	Falconbridge Nickel Mines Ltd.		1966 Mag. EM	52F13/SE	
Docker Tp.	Stephens, C. S.	U	1968 trenching	52F/13SE	
MacNicol Tp.	Machin, B.		1953 3 DDH (100') 1955 1 DDH (246')	52F/13SW	
Tustin Tp.	Alcock, C.		1956 3 DDH (133.5')	52F/13SW	
Bigstone Bay	Minaki Gold Mines Ltd.	Au	1973 prospectus	52F/9 NW	
Contact Bay	Nichro Mines Ltd.		1 DDH location map 1 claim location map	52F/10NW	
Snowshoe Bay (Shoal Lake)	Consolidated Professor Mines Ltd.	Au	1 prospectus	52F/11SE	
Turtlepond Lake	Whitewater Gold Mines Ltd.		1972 property report and prospectus	52F/10SE	

No.	Company	Location	Contractor	Type	Equipment	Year	NTS	Toronto File No.
			PATRICIA MINING DIVISION					
	Crobie Area	Union Miniere Explorations and Mining Corp. Ltd.			1973 Air Mag.		52O/2,3,4,5,6, 7 E & W, 11W and 12 E	
	Papkichi Lake	Bayard Resources Ltd.			1 1973 prospectus		52D/8NW	
	Penassi Lake	Murgor Explorations Ltd.			1972 property report and prospectus		52O/14NE	
	Sixmile Lake	Norlex Mines Ltd.			1973 Statement of Material Facts		52O/15NW	
	Sixmile Lake	Santa Maria Mines Ltd.			1 1973 prospectus 1 progress report		52O/15NW	
	Smock Lake	Combined Metal Mines Ltd.			1972 property report and statement of material facts		52C/13NE	
	S.W. Sturgeon Lake	Xtra Developments Inc.			1973 property report and prospectus		52O/14SE	
	Squaw Lake	Phelps Dodge Corp. of Canada Ltd.			1 approval of assessment work credits		52J/2SE	
	Squaw Lake	Royex Mining Ltd.			1 1973 prospectus		52J/1 & 2	
	Squaw Lake	Sturgex Mines Ltd.			1 1973 prospectus and report		52J/1 & 2	

Table 5 Airborne Geophysical Data Received in 1973

No.	Company	Location	Contractor	Type	Equipment	Year	NTS	Toronto File No.
1.	Calmor Iron Bay Mines Ltd. and Selco Mining Corp. Ltd.	Sixmile and Quest Lakes Areas	Questor Surveys Ltd.	Mag.	Barringer AM-101A Precision Magnetometer	1971	52O/15 NW & NE	2.982
2.	Dome Exploration (Canada) Ltd.	Code Tp.	Geoterrex Ltd.	Mag.	Geometrics G-803 Proton Resonance Magnetometer	1972	52E/9SE	2.1081
3.	Union Miniere Explorations and Mining Corp. Ltd.	Crobie Area	Canico	Mag.	Varian V4937A Proton Precision Magnetometer Geometrics G-803 Proton Resonance Magnetometer	1973	52O/2,3, 4,5,6,7 EAW and 11W and 12E	

KIRKLAND LAKE DISTRICT

By

H.L. Lovell and J.W. de Grijs

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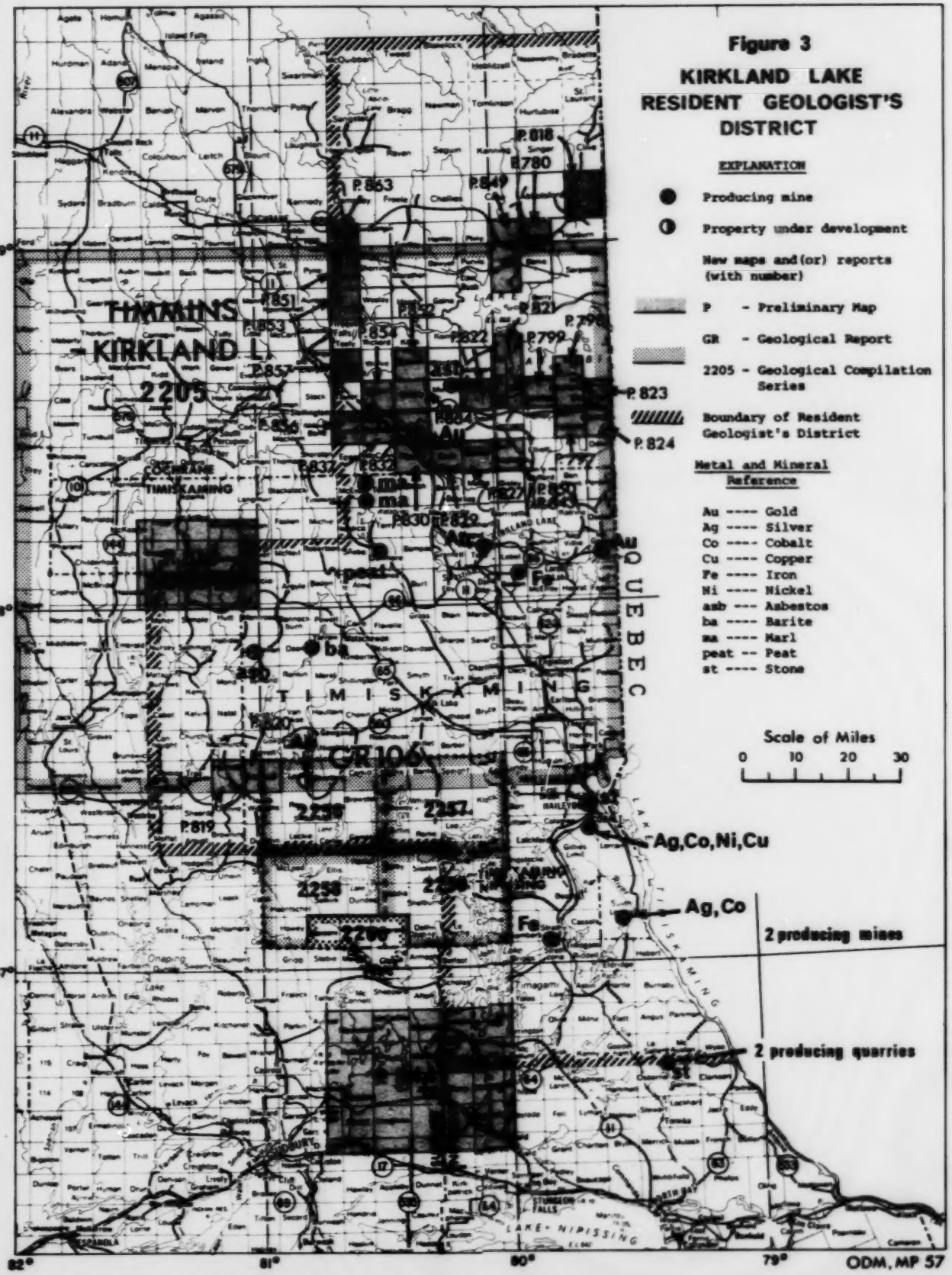
Figure 3
KIRKLAND LAKE
RESIDENT GEOLOGIST'S
DISTRICT
EXPLANATION
Producing mine
Property under development
New maps and(or) reports
(with number)
P - Preliminary Map
GR - Geological Report
2205 - Geological Compilation
Series
Boundary of Resident
Geologist's District
Metal and Mineral
Reference
Au ---- Gold
Ag ---- Silver
Co ---- Cobalt
Cu ---- Copper
Fe ---- Iron
Ni ---- Nickel
asb --- Asbestos
ba ---- Barite
ma ---- Marl
peat -- Peat
st ---- Stone
Scale of Miles
0 10 20 30
HIMMINS
KIRKLAND L.
2205
TIMISKAMING
QUEBEC
GR106
Ag,Co,Ni,Cu
Ag,Co
2 producing mines
2 producing quarries
LAKE NIPISSING
82°
81°
80°
79°
49°
48°
47°
ODM, MP 57

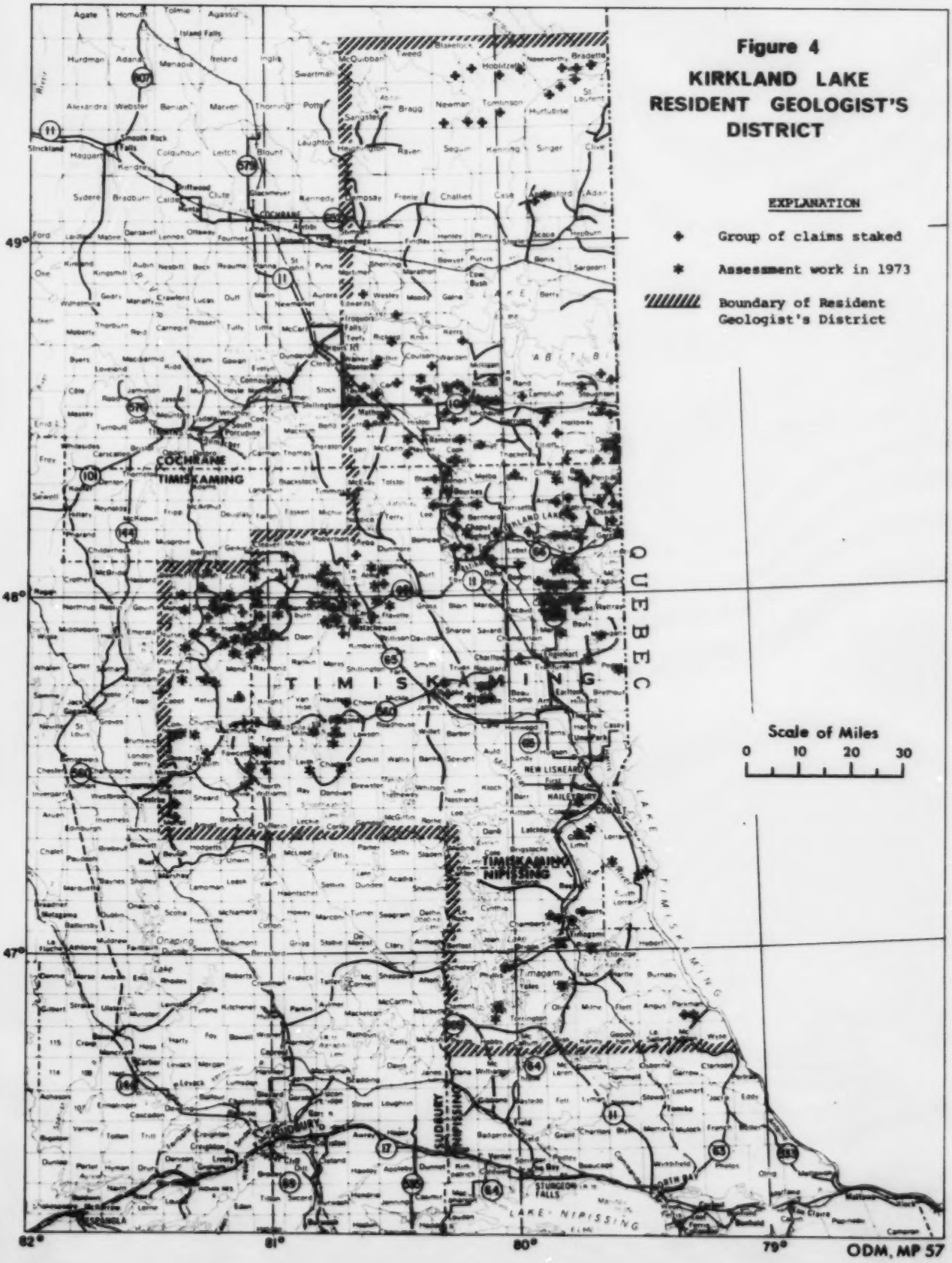
Figure 4
KIRKLAND LAKE
RESIDENT GEOLOGIST'S
DISTRICT
EXPLANATION
Group of claims staked
Assessment work in 1973
Boundary of Resident Geologist's District
Scale of Miles
0 10 20 30
COCHRANE
TIMISKAMING
T I M I S K A M I N G
QUEBEC
NEW LISKEARD
HAILEYBURY
TIMISKAMING
NIPISSING
SUDBURY
NIPISSING
STURGEON FALLS
LAKE NIPISSING
49°
48°
47°
82°
81°
80°
79°
ODM, MP 57

KIRKLAND LAKE DISTRICT

By

H.L. Lovell[1] and J.W. de Grijs[2]

INTRODUCTION

In 1973, the staff of the Resident Geologist's office consisted of a Resident Geologist, a geological assistant, a part-time secretary, a draftsman, and an assistant hired on a three-month contract to arrange and complete files, maps, and a Metal Resources Circular in anticipation of considerable renewed interest in gold. The winter works project "Ontario Seasonal Employment Program" employed six draftsmen in compilation of Kirkland Lake Data Series maps; the summer student training program "Students Working on Resource Development" employed three draftsmen in the compilation of Kirkland Lake Data Series maps for 10 weeks, completing 42 and 15 maps, respectively.

In 1973, the Ontario government's Mineral Exploration Assistance Program (MEAP) contributed to exploration projects initiated by seven companies and individuals in the Kirkland Lake Resident Geologist's district. Reported anticipated expenditures are $231,535 of which one third is reimbursable by the government. Exploration activity has, in general, decreased and is reflected in the fewer number of companies and individuals participating in the Mineral Exploration Assistance Program.

In the general area of Sothman, Halliday, and Midlothian Townships exploration was fairly concentrated. The work consisted of geological and geophysical surveys and diamond drilling.

In the Kirkland Lake Resident Geologist's district (i.e. the Larder Lake Mining Division), 3,260 claims were staked during 1973, including more than 400 claims in the area of Midlothian, Montrose, and Zavitz Townships west of Matachewan.

RESIDENT GEOLOGIST'S ACTIVITIES

Duties of the Kirkland Lake Resident Geologist's office encompassed a broad range of services during 1973. These included: gathering and filing mineral exploration and work data received from private companies and from various publication; discussions with numerous prospectors and

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[2]Assistant to Resident Geologist.

geologists regarding exploration matters; visits to mines and examinations of properties; conducting college, high school, government, and exploration people on geological tours of the Cobalt and Kirkland Lake areas; speaking to elementary school pupils and other groups about the local geology; composing monthly reports and the Kirkland Lake Resident Geologist's Annual Report; participating in municipal planning board, regional advisory board, and Ministry of Natural Resources meetings concerning land usage (particularly for the reviving mining area of Matachewan), and mapping the south part of Lorrain Township.

GEOLOGICAL BRANCH ACTIVITIES

In the Larder Lake Mining Division, geological mapping was conducted in Rand, Lamplugh, Frecheville Townships, Indian Reserve 70, and lower Lake Abitibi by L.S. Jensen of the Precambrian Geology Section; the Geochemistry of Quaternary Deposits in Halliday, Midlothian, Kelvin, and Natal Townships by G. Closs and E. Sado of the Geophysics/Geochemistry Section; a Regional Gravity Survey of the Lake Timiskaming-Englehart area was carried out by J.A. McCance of the Geophysics/Geochemistry section; and geological mapping of Connaught and Churchill Townships was undertaken by M.W. Carter of the Precambrian Geology Section.

DEVELOPMENT AND MINING ACTIVITY

During 1972, three silver, three gold, three building stone, two iron, one barite, and one asbestos producing mines were operating. During 1973, one new mine, the Kanichee Mining Incorporated copper-nickel-platinum producer began operating and is shipping concentrate to the Falconbridge Nickel Mines Limited smelter in Sudbury. Also during 1973, United Asbestos Incorporated, which was formed by the merger of United Asbestos Corporation Limited with Allied Mining Corporation Limited, continued development at their property in Midlothian Township.

TEMAGAMI AREA

Small amounts of ornamental stone were quarried in McAuslan Township by G. Bougher and G.M. Mote.

The Kanichee Mining Incorporated copper-nickel-platinum mine went into production.

The Sherman Mine, owned by Dominion Foundries and Steel Limited (90 percent) and Tetapaga-Mining Company (10 percent), increased production of iron ore pellets by approximately 20 percent.

COBALT AREA

Canadaka Mines Limited, a company formed in 1973 by Silver Shield Mines Limited and St. Joseph Explorations Limited, carried out exploration on the Conisil, Cleopatra, and University properties. Underground drifting was conducted from the Conisil shaft.

Agnico-Eagle Mines Limited did development work on the Timiskaming-Beaver property. Frontier and Trout Lake Mines shipped silver ore to the Penn Mill.

The Silverfields Mine, owned by Teck Corporation Limited, continued normal operations throughout 1973.

ELK LAKE-GOWGANDA AREA

Silverbridge Mining Corporation, formerly known as Rustex Mining Corporation and Rusty Lake Mining Corporation, rehabilitated the access road to the mine site.

MATACHEWAN AREA

Extender Minerals of Canada Limited completed the first phase of rebuilding and enlarging, the barite mill.

Development work continued at the United Asbestos Incorporated property, with production planned for 1975.

KIRKLAND LAKE-LARDER LAKE AREA

Kerr Addison Mines Limited maintained normal mining and milling of gold ore.

The Macassa mine of Willroy Mines Limited produced gold ore from the Tegren, Macassa, and Kirkland Minerals sections, with development and exploration concentrated in the Tegren section, where four exploratory drills are operating.

A tailings disposal area was prepared by Upper Canada Resources partly in anticipation of a favourable report for the feasibility study, currently in progress, regarding profitable recovery of gold from the Wright-Hargreaves Mines Limited and Lake Shore Mines Limited tailings that now fill part of the basin of the former Kirkland Lake.

As a result of increased demands for steel, the Dominion Foundries and Steel Limited controlled iron mine, Adams (Kirkland Lake area), increased production of pellets from 1,100,000 tons in 1972 to 1,200,000 tons in 1973. Their Sherman Mine (Temagami area) produced 1,000,000 tons in 1973 which is about the same as 1972. Plans are to increase the rate of production for 1974.

MATHESON AREA

Normal mining and milling operations were continued at the Ross gold mine of Hollinger Mines Limited.

The New Kelore Mines Limited shaft was dewatered and surface exploration carried out by Hollinger Mines Limited, with a view to milling any ore developed for the nearby Hollinger Mines Limited Ross Mine Mill.

Owing to the increased demand for asbestos, Hedman Mines Limited is preparing to increase milling rate to 300 tons per day from the 80 tons per day, an increase in production from the 1972 production rate of 60 tons per day.

SAND AND GRAVEL

Two hundred and ninety-two thousand cubic yards of sand and gravel were removed from Crown Land on permits issued by the Mining Recorder's Office; this does not include material used on permits issued to the Ministry of Transportation and Communications. Waste rock from Adams Mine was again used as railroad ballast by the Ontario Northland Railway.

PROPERTY EXAMINATIONS

Sciminex Limited

The property consists of 18 unpatented claims in the northwest quarter of Harker Township. Access to the company's diamond drill camp is from a logging road which goes south for approximately 2,000 feet, about 6,000 feet east of the Harker-Garrison Township boundary.

According to J. Satterly (Ontario Department Mines, Annual Report, 1951, Vol.60, pt.7, Geology of Harker Township, District of Cochrane, accompanied by Map 1951-4, scale 1 inch to 1,000 feet) these claims are underlain by volcanic, gabbroic, and sedimentary rocks. Three diamond drill holes bored in 1973 encountered between 50 feet and 100 feet of overburden. Beneath this drift cover, the rocks intersected consist mainly of fine-grained andesite and basalt. Also present are serpentine and chlorite-talc schist and massive, pyroclastic, and layered (1mm to 5mm) cherty felsic volcanic rocks. The volcanic rocks are cut by minor fine-grained porphyritic (phenocrysts 1mm to 2mm in size) feldspar syenite dike (up to approximately 1 metre thick) and by sparse veins (1mm to 5mm thick) of calcite, quartz, epidote, and gypsum (?) stringers. Mineralization consists of minor disseminated pyrite cubes (1mm). The drill holes were bored in an area postulated to be underlain by sedimentary rocks, but such rocks were not intersected.

A small outcrop approximately 500 feet south of the drill camp was also examined (not marked on the Harker Township ODM Map 1951-4), and appeared to consist of medium-grained massive metavolcanics.

John Zuzack

The property is situated approximately 6 miles south of Cobalt on The Hydro-Electric Power Commission of Ontario access road to the Hound and Ragged Chutes plants in Gillies Limit Township. The general geology is shown on Robert Thomson's maps (ODM Prov. Maps P.83, P.95) of Gillies Limit Township and consists of Nipissing Diabase and Gowganda sedimentary rocks. John Zuzack excavated a number of small pits in an attempt to find the contact between the diabase and sedimentary rocks.

Collars of two diamond drill holes (azimuths about 045° dipping 45 degrees and 60 degrees) of unknown age are 600 feet north and 150 feet east of No.3 post, Claim 372914. These drill holes are shown on R. Thomson's ODM Provisional Map P.95, scale 1 inch to 400 feet. However, no record of logs for these holes is in the Resident Geologist's Files at Kirkland Lake.

Eastward from the Montreal River outcrops of diabase occur, the majority of which are varied textured and granophyric, the latter locally very coarse grained. Some "dikes" of granophyre are present and contain a number of small (1cm to 2cm) vug-like cavities. About 1,500 feet east from the Montreal River are small scattered outcrops of fine-grained, massive darkish green arkose with a few scattered well rounded pebbles (1cm to 5cm) composed of quartz, chert, and granitic material. Much of the property is covered by polymictic boulder till. What appears to be an ancient beach is exposed in the vicinity of the transmission line, with minor varved clays and, on the storm beach above, a medium-grained sand deposit.

UNITED ASBESTOS INCORPORATED MINE

Midlothian Township

The mine site is reached from Matachewan by 32 miles of gravel road. A trailer park for 150 to 200 men is situated 3 miles to the east. Five miles of the proposed new road and utility corridor (Hydro-Electric Power Commission of Ontario "right of way") to Matachewan has been built. The new road will reduce the distance of the mine site to Matachewan from more than 40 to 20 miles, for a total haul of 45 miles from the mine mill to the Ontario Northland Railway branch line at Elk Lake. A number of pits some distance from the mine site are being worked for fill in road building.

The northern half of the "U" shaped orebody has been drilled, trenched, and the land partially cleared, there being little or no overburden present. This is the site of the proposed initial open-pit, which is to reach a depth of 400 feet. The life expectancy of this pit is about 20 to 25 years (R.J. Merrill 1973, personal communication). Long term plans are to enlarge and deepen the pit, and mine the southern half of the orebody which is under an arm of Lloyd Lake.

Initial production from the pit will be short to medium length asbestos, the length mined depending on prevailing market conditions. Four hundred tons of asbestos ore will be treated daily (R.J. Merrill 1973, personal communication). The asbestos will be bagged on site and trucked to the Ontario Northland Railway branch line at Elk Lake.

The millsite is situated east of the northern half of the orebody on a small rocky hill.

Waste rock will be dumped to the north of the open-pit, up to the United Asbestos Incorporated property boundary, and tailings will be disposed in an area 1,000 feet northeast of the millsite.

A number of dams (rock core with clay coverings) will be built to contain the tailings, resulting in minimal environmental damage to the main body of Lloyd Lake. Minor changes in the drainage pattern will occur chiefly to the small lakes located to the north.

W.J. Turney

The core of two diamond drill holes (aggregating 719 feet) was logged. The drilling was done in 1972 and 1973 in Taylor Township, concession III, lot 7, S½. Diabase, serpentine, and chlorite-talc schist were intersected as well as a number of quartz veins and stringers. Mineralization consists of minor pyrite and chalcopyrite.

Newlund Mines Limited

X-ray diamond drill sites in McElroy Township were visited. The claim group extends east into Hearst Township, covering an area of Timiskaming sedimentary rocks, quartz porphyries, and carbonate rocks similar to those from which much of the gold ore of the Matachewan-Kirkland Lake-Larder Lake area has been obtained.

The 1973 drilling tested the zone below old pits in sulphide-bearing felsic breccia and conglomerate. Although the target horizon was intersected, the metal content was found to be less at the depth of the intersection.

Kirana Gold Property

Claims including the property of the old Kirana Kirkland Gold Mines Limited have been assembled by Haas-Warner Mining Corporation and preparations are being made to regain access to the underground workings. Rock formations include syenitic porphyry, similar to that along the "Main Break" zone of the gold mines in Kirkland Lake, as well as volcanic and carbonatized rocks.

Previous operators estimated reserves above the 270-foot level to be 45,000 tons running one-half ounce gold per ton (Loring 1936). During the present work schedule, plans are to dewater the shaft and investigate conditions underground.

RECOMMENDATIONS FOR EXPLORATION

Base Metals

Areas of Archean rocks favourable for base metal exploration but for which no airborne geophysical surveys are filed with the Ontario Division of Mines (see Figure 5) include:

The area centred about 30 miles north of Lake Abitibi

Upper Lake Abitibi

Matheson (mainly deep overburden)

Kirkland Lake

Cobalt area Archean fensters

Of these areas, Kirkland Lake and upper Lake Abitibi are characterized by numerous abrupt changes of trends of formations, perhaps necessitating a grid pattern of survey coverage.

In the Kirkland Lake area, base metal exploration has generally been concentrated in the copper-zinc mineral assemblages. There are many occurrences of lead-zinc with minor copper and ± graphite which have as a result, remained relatively untested. These latter occurrences may represent an epithermal zone related to significant deeper, or stratigraphically lower, mesothermal copper-zinc concentrations as described by Mannard (1973, p.13 in The syngenetic massive sulphide deposits, Am. Inst. Mining Eng. preprint No. 73-S-53).

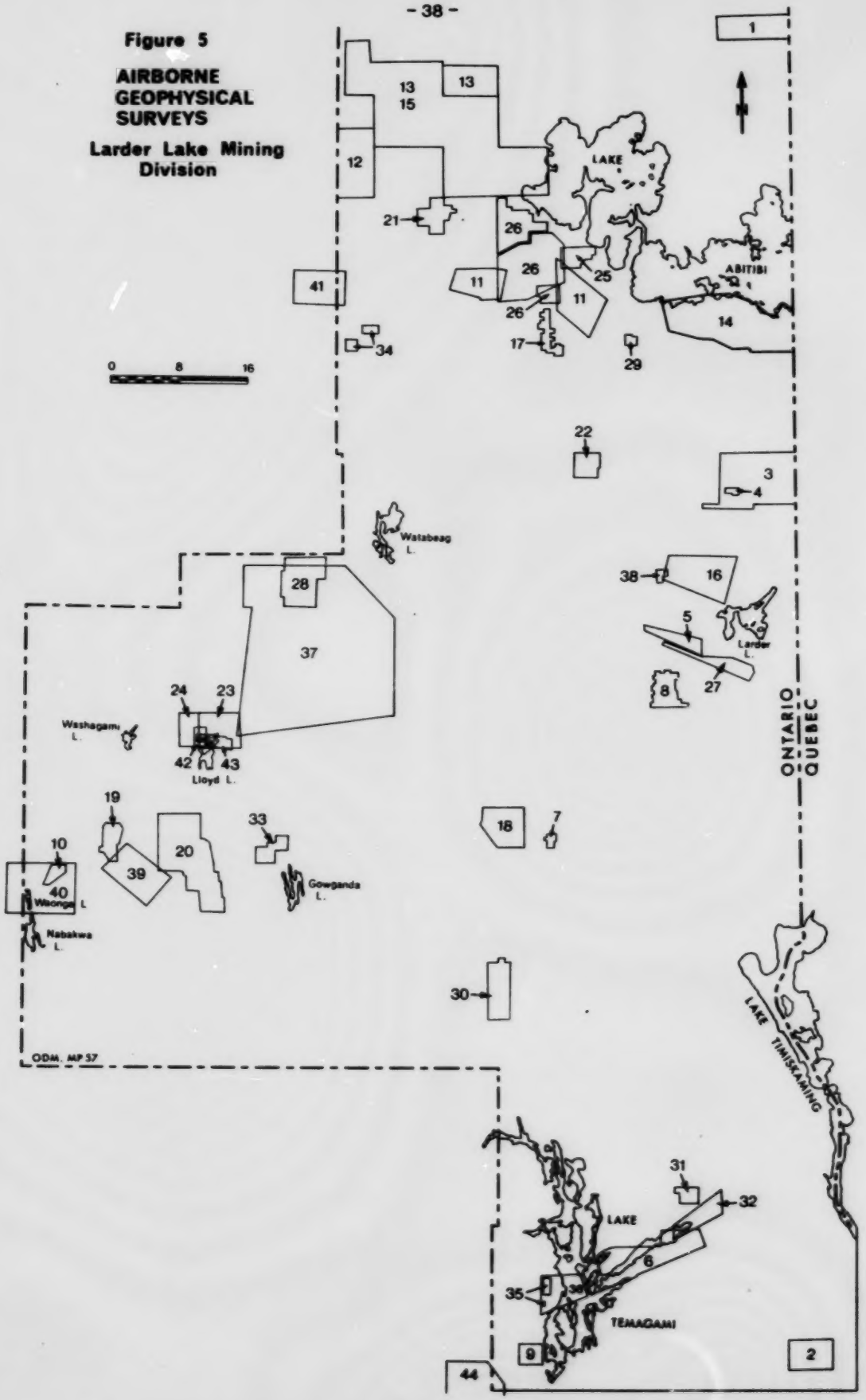
Gold

Of Canada's gold mining areas, the Matachewan-Kirkland Lake-Larder Lake area produced the second largest amount (41,096,305 ounces of gold extracted from the ground by the end of 1972), being surpassed in this regard only by the Timmins area. In the Matachewan-Kirkland Lake-Larder Lake area the formations that have been the most prolific hosts of gold ore are porphyry (mainly syenitic) and green carbonate rock. The mineral composition of the green carbonate rock is principally dolomite, calcite, ankerite, quartz, chert, chromite-mica, chlorite, and sparsely disseminated pyrite. Gold distribution in green carbonate rock is typically erratic, rendering difficult evaluation of tonnage and grade by diamond drilling. The ore generally has a low to moderate average grade, but occurs in large tonnages characteristic of strata-bound metal deposits. Contrary to a popular impression, the gold-bearing carbonate rock is not confined, for example, to the Larder Lake Fault zone, but rather is formational in its distribution, having originally been a chemically precipitated sediment (Brock, R.W., 1907, Ontario Bureau of Mines, Vol.16, pt.1, p.207; and Ridler, R.H., 1970, Geol. Assoc. Canada, Vol.21, p.39). Zones of green carbonate rock, all of which might be worthy of investigation in search of gold deposits, are outlined on Figure 3-6).

Figure 5

AIRBORNE GEOPHYSICAL SURVEYS

Larder Lake Mining Division



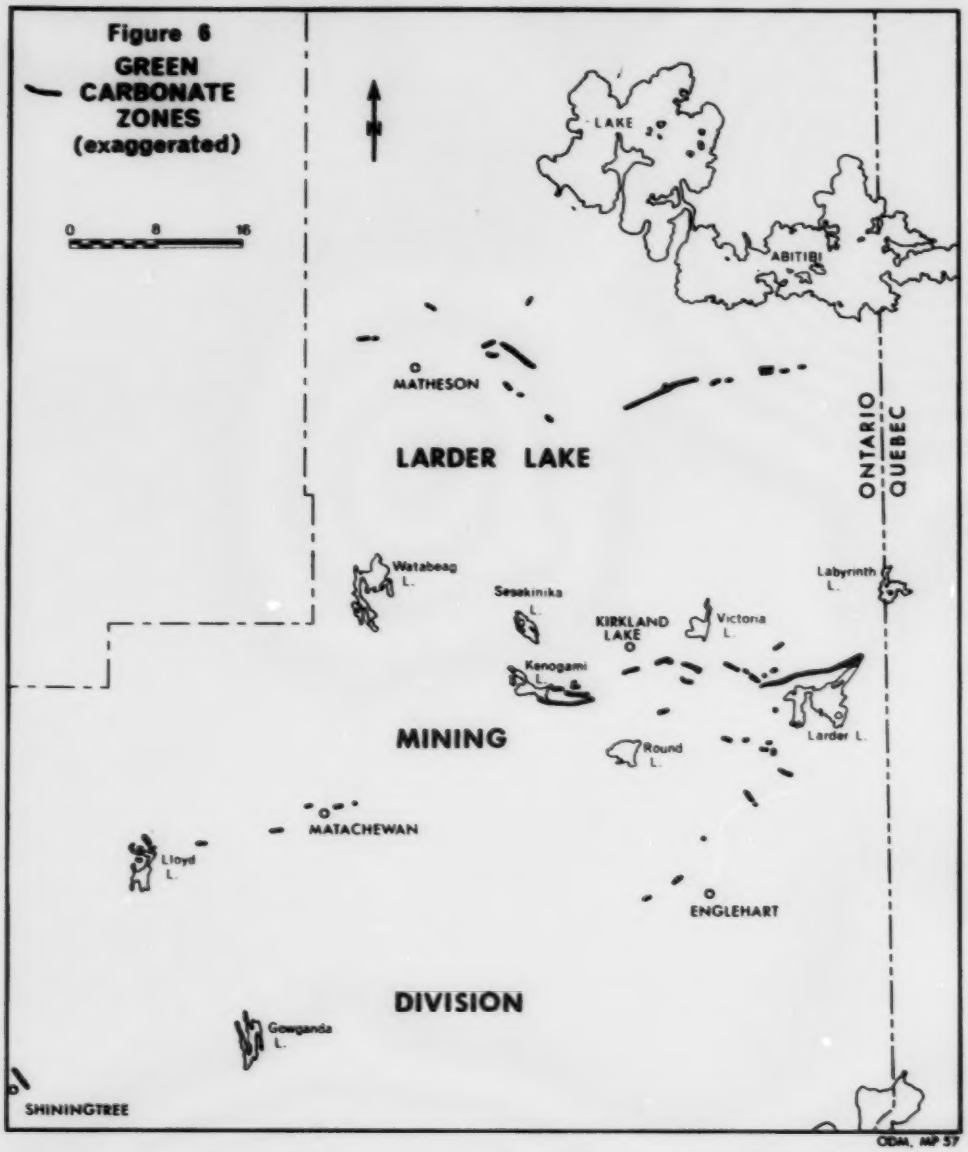


Figure 6
GREEN CARBONATE ZONES (exaggerated)
0
8
16
LAKE
ABITIBI
MATHESON
LARDER LAKE
ONTARIO
QUEBEC
Watabeag L.
Sesekinika L.
KIRKLAND LAKE
Victoria L.
Labyrinth L.
Kenogami L.
Larder L.
MINING
Round L.
MATACHEWAN
Lloyd L.
ENGLEHART
DIVISION
Gowganda L.
SHININGTREE
ODM, MP 57

NEW ODM MAPS AND REPORTS ISSUED IN 1973

P.780 Scapa Township, District of Cochrane (32 D/13, 32 E/4), Kirkland Lake Data Series. Data compiled by H.L. Lovell and E.D. Frey, assisted by staff of the Geological Survey of Canada. Scale, 1 inch to ¼ mile.

P.818 Adair Township, District of Cochrane (32 E/4E), Kirkland Lake Data Series. Data compiled by H.L. Lovell and E.D. Frey, assisted by the staff of the Geological Survey of Canada, 1972. Scale, 1 inch to ¼ mile.

P.819 Fawcett Township, District of Sudbury (41 P/6E, 41 P/11E). Geology by M.W. Carter and assistants, 1972. Scale, 1 inch to ¼ mile.

P.820 Leonard Township, District of Timiskaming (41 P/6E, 41 P/7W, 41 P/10W, 41 P/11E). Geology by M.W. Carter and assistants, 1972. Scale, 1 inch to ¼ mile.

P.821 Rand Township and Indian Reserve 70, District of Cochrane (32 D/12W, 42 A/9E), Kirkland Lake Data Series. Data compiled by H.L. Lovell and E.D. Frey, assisted by the staff of the Geological Survey of Canada, 1972. Scale, 1 inch to ¼ mile.

P.822 McCool Township, District of Cochrane (42 A/9), Kirkland Lake Data Series. Data compiled by H.L. Lovell and E.D. Frey, assisted by the staff of the Geological Survey of Canada, 1972. Scale, 1 inch to ¼ mile.

P.823 Stoughton Township, District of Cochrane (32 D/12E). Geology by L.S. Jensen and assistants, 1972. Scale, 1 inch to ¼ mile.

P.824 Marriott Township, District of Cochrane (32 D/5E, 32 D/12E). Geology by L.S. Jensen and assistants, 1972. Scale, 1 inch to ¼ mile.

P.827 Barnet Township, District of Cochrane (42 A/8E), Kirkland Lake Data Series. Data compiled by H.L. Lovell and E.D. Frey, assisted by the staff of the Geological Survey of Canada, 1972. Scale, 1 inch to ¼ mile.

P.829 Cook Township, District of Cochrane (42 A/8), Kirkland Lake Data Series. Data compiled by H.L. Lovell and E.D. Frey, assisted by the staff of the Geological Survey of Canada, 1972. Scale, 1 inch to ¼ mile.

P.830 Playfair Township, District of Cochrane (42 A/7, 42 A/8), Kirkland Lake Data Series. Data compiled by H.L. Lovell and E.D. Frey, assisted by the staff of the Geological Survey of Canada, 1972. Scale, 1 inch to ¼ mile.

P.832 Hislop Township, District of Cochrane (42 A/8W, 42 A/9W), Kirkland Lake Data Series. Data compiled by H.L. Lovell and E.D. Frey, assisted by the staff of the Geological Survey of Canada, 1972. Scale, 1 inch to ¼ mile.

P.837 Bowman Township, District of Cochrane, (42 A/7, 42 A/8, 42 A/9, 42 A/10), Kirkland Lake Data Series. Data compiled by H.L. Lovell, E.D. Frey, and Jan de Grijs, assisted by the staff of the Geological Survey of Canada, 1972. Scale, 1 inch to ¼ mile.

P.843 Thackeray Township, District of Cochrane (32 D/5). Geology by L.S. Jensen and assistants, 1972. Scale, 1 inch to ¼ mile.

P.844 River Valley Area, Districts of Nipissing and Sudbury (41 I/9, 41 I/10E, 41 I/15E, 41 I/16). Geology by S.B. Lumbers and assistants, 1971, 1972, 1973. Scale, 1 inch to 1 mile.

P.849 Steele Township, District of Cochrane, (32 D/13E), Kirkland Lake Data Series. Data compiled by H.L. Lovell, E.D. Frey, and Jan de Grijs, assisted by the staff of the Geological Survey of Canada, 1972, 1973. Scale, 1 inch to ¼ mile.

P.850 Thackeray Township, District of Cochrane (32 D/5), Kirkland Lake Data Series. Data compiled by H.L. Lovell, E.D. Frey, and Jan de Grijs, assisted by the staff of the Geological Survey of Canada, 1972, 1973. Scale, 1 inch to ¼ mile.

P.851 Mortimer Township, District of Cochrane (42 A/15), Kirkland Lake Data Series. Data compiled by H.L. Lovell, E.D. Frey, and Jan de Grijs, assisted by the staff of the Geological Survey of Canada, 1972, 1973. Scale, 1 inch to ¼ mile.

P.852 Coulson Township, District of Cochrane (42 A/9), Kirkland Lake Data Series. Data compiled by H.L. Lovell, E.D. Frey, and Jan de Grijs, assisted by the staff of the Geological Survey of Canada, 1972, 1973. Scale, 1 inch to ¼ mile.

P.853 Edwards Township, District of Cochrane, (42 A/15), Kirkland Lake Data Series. Data compiled by H.L. Lovell, E.D. Frey, and Jan de Grijs, assisted by the staff of the Geological Survey of Canada, 1972, 1973. Scale, 1 inch to ¼ mile.

P.854 Carr Township, District of Cochrane, (42 A/9, 42 A/10), Kirkland Lake Data Series. Data compiled by H.L. Lovell and Jan de Grijs, 1973. Scale, 1 inch to ¼ mile.

P.856 Currie Township, District of Cochrane, (42 A/7, 42 A/10), Kirkland Lake Data Series. Data compiled by H.L. Lovell and Jan de Grijs, 1973. Scale, 1 inch to ¼ mile.

P.856 Walker Township, District of Cochrane, (42 A/10), Kirkland Lake Data Series. Data compiled by H.L. Lovell, E.D. Frey, and Jan de Grijs, assisted by the staff of the Geological Survey of Canada, 1972, 1973. Scale, 1 inch to ¼ mile.

P. 863 Stimson Township, District of Cochrane, (42 A/15, 42 H/2), Kirkland Lake Data Series. Data compiled by H.L. Lovell, and Jan de Grijs, 1972, 1973. Scale, 1 inch to ¼ mile.

P.864 Beatty Township, District of Cochrane (42 A/9), Kirkland Lake Data Series. Data compiled by H.L. Lovell, E.D. Frey, and Jan de Grijs, assisted by the staff of the Geological Survey of Canada, 1972, 1973. Scale, 1 inch to ¼ mile.

GR106 Geology of the Maple Mountain Area, Districts of Timiskaming, Nipissing, and Sudbury, (41 P/1, 41 P/2, 41 P/7, 41 P/8, 41 P/9, 41 P/10), by K.D. Card, W.H. McIlwaine and H.D. Meyn, 133p., 16 tables, 16 figures, 16 photographs. Accompanied by:
Map 2256, Smoothwater Lake, District of Timiskaming, scale 1 inch to 1 mile.
Map 2257, Makobe Lake, District of Timiskaming, scale 1 inch to 1 mile
Map 2258, Solace Lake, District of Sudbury, scale 1 inch to 1 mile.
Map 2259, Diamond Lake, Districts of Sudbury, Timiskaming, and Nipissing, scale 1 inch to 1 mile.
Map 2260, Yorston Lake, District of Sudbury, scale 1 inch to ¼ mile.

The Maple Mountain area comprises approximately 1,800 square miles. Precambrian rocks of Archean and Proterozoic age underlie the map-area and are overlain by unconsolidated Cenozoic glacial and glaciofluvial deposits.

Map 2205 Timmins-Kirkland Lake, Cochrane, Sudbury, and Timiskaming Districts (31M, 32D, 41P, 42A). Geological compilation by D.R. Pyke, L.D. Ayres, and D.G. Innes, 1970, 1971. Previous compilation by Ginn et al., Map 2046, 1964. Scale, 1 inch to 4 miles.

MP54 Annual Report of Resident Geologists' Section, Geological Branch, 1972, edited by E.G. Pye, 180p.

MP55 Mineral Exploration Topics, by S.A. Ferguson, E.B. Freeman, E.C. Blunden, D.S. Andrews, O.H. Bjarnason, J.A. McCance, and E.C. Hamilton, 173p., 13 tables, 17 figures, 1 photo.

MP56 Summary of Field Work, 1973, by the Geological Branch (30, 31, 32, 40, 41, 42, 52). Edited by V.G. Milne, D.F. Hewitt, and W.J. Wolfe, 201p. plus various figures and key maps.

OFR 5091 (Part 2) Geochemical Report No. 1, part 3. Gold in Early Precambrian Superior Province Plutonic Rocks: The Relation between Geochemical Abundance and Concentration to Exploitable Levels, Districts of Kenora, Thunder Bay, Algoma, and Timiskaming (52, 42) by W.J. Wolfe. 16p., 3 figures, 1 table.

ODM-GSC 1972 Great Lakes-Ottawa River Sheet, Algoma, Sudbury, Timiskaming, Nipissing, and Manitoulin Districts and southern Ontario; Ontario Div. Mines - Geol. Surv. Canada, Prelim. Map P.800, Aeromagnetic Compilation Map, scale, 1 inch to 16 miles.

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1972: Grenville Front and Rifting of the Canadian Shield; Nature Physical Science, Vol.237, No.78, p.139-140.

Eckstrand, O.R., and Miller, A.R.
1973: A study of Sulphide and Spinifex Distribution of the Texmont Nickel Deposit; p.125-126 in Report of Activities, Part A: April to October 1973, Geol. Surv. Canada, Paper 73-1, Part A, 297p.

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1973: Evaluation of Rb-Sr Dating Methods Applied to the Matachewan, Abitibi, MacKenzie, and Sudbury Dike Swarms in Canada; Canadian J. Earth Sci., Vol.10, No.6, p.900-919.

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1971: Unit Regional Value of Non-Renewable Natural Resources as a Measure of Potential for Development of Large Regions; p.227-238 in Symposium on Archaean Rocks held at Perth, 23-26 May 1970, edited by J.E. Glover, Geol. Soc. Australia, Special Publication No.3, 469p.

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1973: Egma Seismic Survey; p.88-90 in Report of Activities, Part A: April to October 1972, Geological Survey of Canada, Paper 73-1, Part A, 297p.

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1972: Variations in Tectonic Styles in Canada; Geol. Assoc. Canada, Special Paper No.11, 688p.

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1973: Exhalite concept a new tool for exploration (article); The Northern Miner, 29 Nov. 1973, p.59-61.

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1972: Precambrian Volcanogenic Massive Sulphide Deposits in Canada; A Review; Geol. Surv. Canada, Paper 72-22, 44p.

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1973: Experimental High-Resolution Aeromagnetic Surveys: 1972; p.95-97 in Report of Activities, Part A: April to October 1972, Geol. Surv. Canada, Paper 73-1, Part A, 297p.

Skinner, R.G.
1973: Results of Overburden Drilling-Geochemistry Pilot Project Kam Kotia-Jameland; Geol. Surv. Canada, OFR116 Supplement.

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1973: Huronian Stratigraphy and Sedimentation; Geol. Assoc. Canada, Special Paper No.12, 271p.

Table 6 Assessment Work and Other Information Received in 1973

Kirkland Lake Resident Geologist's District

AEM airborne electromagnetometer survey
AM airborne magnetometer survey
DH diamond drill hole(s)
EM ground electromagnetometer survey
Gb biogeochemical survey
Gc geochemical survey
geol geology
HS DH core samples
IP induced polarization survey
Mag ground magnetometer survey
R resistivity survey
rTr rock trenching
SP self potential
sTr soil trenching and stripping

Township	Location	Name of property file	Kind of data
Abbotsford	W center	Stanford Mines Ltd.	DH 1 - 3, locations (1" = 200'), Feb.-Mar. 1973
Alma		Canadian Johns-Manville Co. Ltd. "Steve Lake Group" also Cairo Tp.	EM & geol(S) (1" = 200'), Mar. 1973; property plan (1" = 1320'), Feb. 1973
		Canadian Johns-Manville Co. Ltd. "Beaverpond group" also Holmes Tp.	geol rept. by J. H. Morris, Sept. 1972; Gb (S) (1" = 400'), Dec. 1972; property plan (1" = 1320'), Dec. 1972; geol & topo (1" = 400'), Dec. 1972 & rept. by P. A. R. Brown, & F. J. Evelegh, Jan. 1973
Argyle	NE¼	Witherspoon, J. A. (Mid-North Engineering Services Ltd.)	rTr sketches, Aug.-Nov. 1972; EM & Mag (1" = 200') & rept. S. S. Szetus, May 1973
	SW¼	Sunisloe, G.	rTr sketch, June-Jul. 1973
Arnold	E center	Deloye, E. C.	sTr sketch, Jul.-Aug. 1973
Asquith	NE¼, NW pt.	Saville, A.	sTr sketch, Jul.-Aug.-Sep. 1973
	NE¼	McBride, W. W.	sTr sketch, May-Sep. 1973
Baden	NW¼	Canadian Johns-Manville Co. Ltd. "Thesaurus group"	geol (1" = 100') Sep. 1972; EM (1" = 400') Jan. 1973 & repts. by J. H. Morris Sep. 1972 & F. J. Evelegh Jan. 1973
	center	Larche, John P. & Rousseau, A.	rTr sketch, June 1973; EM (1" = 400') Aug. 1973 & rept. by J. P. Larche Aug. 1973
	W center	Ronoa Copper Mines Ltd.	prospectus Jun. 1973
Dennockburn	SW¼	Canex Aerial Exploration Ltd. "Faulkner, F. H.; Burns, James claims"	geol, Mag, EM (1" = 400'), Oct 1972 & rept. by James Burns, Sep. 1972
		Canadian Johns-Manville Co. Ltd. "Brookbank, Len claims; Welsh group" see also Powell Tp.	see under Powell Tp.
Beatty	Con.VI, lot 9, NE¼, NW pt.	Noranda Exploration Co. Ltd. "Beatty I-71 prop."	EM, combined EM & Mag (1" = 400') Aug. 1972 & rept. by W. G. Lunt, Nov. 1972; DH B-73-3 & B-73-4, Jan.-Feb. 1973; locations (1" = 400') Aug. 1972 & rept. by W. F. Graham, Apr. 1973
	Con. VI, lots 4, 5 & 6, center	Shenandoah Mines Inc.	prospectus, Jan. 1973; prospectus, Jul. 1973
Ben Nevis		Kerr Addison Mines Ltd. "O-11" Project also Clifford Tp.	see under Clifford Tp.
		Amax Exploration Incorporated "Canagau Mines opt." also Katrine and Pontiac Tps.	IP (S), geol (S), Gc (?) (1" = 400'), Mar. 1973 & repts. by W. R. Ryall; DH TX-99-73, TX-100-73, TX-101-73, TX-105-73, TX-107-73, TX-108-73, locations (1" = 400') Apr.-Jun. 1973

Township	Location	Name of property file	Kind of data
Benoit	Con. II, lots 9 & 10, SWĮ	Spakobe Mines Incorporated "Hensberger, J. C. claims	Mag, EM (1" = 200') & rept. by W. N. Ingham, Dec. 1972
		Noranda Exploration Co. Ltd. "Johnson opt." "Benoit B-1-66; B-1-71 to B-6-71"	EM (6), Mag (2) (1" = 400'), Jan.-Feb. 1972 & repts. (4) by E. A. Gallo, Jan.-Mar. 1972; EM & Mag (1" = 400'), June 1972 & rept. by W. E. Lunt; DH B-72-12 & B-73-1, Dec. 1972 & Jan. 1973; locations (1" = 400')
	Con. V, lot 10, NWĮ	Bruno, E.	rTr sketch, Aug.-Sep. 1972
		Imperial Oil Ltd.	EM (2), Mag (2) (1" = 200'), Mar.-Apr. 1972
Bernhardt	NWĮ, NW pt.	Ajax Minerals Ltd. "Rivera, E. Opt."	geol & sampling (1" = 20' & 1" = 100') Jan. 1972
	SWĮ, SW pt.	Lavalee, H.	rTr sketch, Oct.-Nov. 1972 & Mar. 1973
		Detoye, E. C. also Morrisette Tp.	rTr sketch, Jul.-Aug. 1973
Black		Imperial Oil Ltd.	EM (3), Mag (1" = 200') Mar.-Apr. 1972
Boston	NĮ, center	Marshall Boston Iron Mines Ltd. "Marshall, Chas. & Ray claims" North group	Gc (16) (1" = 200') Jul., Sep.-Oct. 1971; Gc & EM (1" = 200') Oct. 1971; EM (1" = 200') Sep. 1971; geol (3) (1" = 200') Jan., Jul. 1971; Mag (1" = 200') Aug. 1971 & rept. by L. G. Hobbs Oct. 1971
Bryce	Con. IV, lot 10	Briscoe-Bryce Mines Ltd.	DH BP-1 to BP-6, 7A & 7B, Feb.-Mar. 1939; assays Mar. 1939 with brief repts. by Wm. Ward, Mar. 1939; geol (1" = ½ mi.); veins & trenches (1" = 1/8 mi.)
	Con. IV & V lots 7 & 8	Consolidated Imperial Minerals Ltd.	EM (1" = 200') (2), composite (1" = 50') (4) & rept. by F. P. Tagliamonte, Dec. 1972 (2)
		Consolidated Boeing Holdings & Explorations Ltd. also Tudhope Tp.	DH A-73 & B-73; locations (1" = 300'), Feb.-May 1973; assay repts. Nov. 1972 & May 1973; EM (1" = 300') & rept. by Tom Gledhill, May 1973; geol (1" = 2640')
Bucke		Consolidated Professor Mines Ltd. "Professor Silver Mines, Ltd., Professor Consolidated Mines Ltd." also Gillies Limit & Lorrain Tps.	prospectus, Jan. 1973, Jul. 1973
		St. Joseph Explorations Ltd. "Sas Lake group" also Coleman Tp.	Mag (3) (1" = 200') Sep. 1971 & rept. by D. F. Fisher,
Burrows		Amax Potash Ltd. also Fawcett, Halliday, Knight, Midlothian, Mond & Raymond Tps.	DH TX-01-72, TX-02-72, TX-03-73, Tx-04-72, Dec. 1972, Jan. 1973, location (1" = 400'); Mag (3), EM (3), geol (4), Gc (16) location (1" = 400') & repts. by W. R. Ryall, Jun. 1971 to Jan. 1973
Cairo		Canadian Johns-Manville Co. Ltd. also Alma Tp.	see under Alma Tp.

Township	Location	Name of property file	Kind of data
Catharine		Asbestos Corporation Ltd. also McElroy & Skead Tp.	see under McElroy Tp.
		MacGregor, R. A. also Hearst, McElroy & McVittie Tps.	Mag (1" = 400') & rept. by R. A. MacGregor Dec. 1972; EM (4), Mag (5) (1" = 200') repts. by R. A. MacGregor and L. E. Reed June 1973, Feb. 1973
	W½	Noncrieff Uranium Mines Ltd. "French, J. M. claims"	AEM (1" = 1320'); location map & repts. by D. Watson, Apr. 1970; DH M73-2, Nov. 1973 & location (1" = 500')
	Con. II, lot 3, N½, NW¼	Niemi, W	rTr sketches, Jun.-Aug. 1972 (2) (1" = 400)
	Con. II, lot 5, N½	Walsh, W. M.	aTr sketch, Jun.-Jul. 1973
		MacGregor, R. A. (Selco Mining Corp. Ltd. opt.) also Skead Tp.	Mag (5) (1" = 200'), location (1" = ½ mi.) repts. by L. E. Reed, Dec. 1972 & Oct. 1973
Charters	SE¼, SW pt.	Shortner, G. also Donovan & Leith Tps.	DH S-14, S-15, S-16, S-17, S-18, S-19, S-20 & S-21 Aug.-Oct. 1972; locations (1" = 200'); rTr sketch (1" = 200') Sep.-Nov. 1971, Aug. 1973; assays Sep.-Nov. 1972; Rept. by G. Shortner, Nov. 1972
Churchill	SW¼, NW pt.	Falcon Gold Developments Ltd. "Hames, Marshall C. claims"	prospectus, Sep. 1972; DH 1 & 2, May-Jun. 1973; locations (no scale); geol. Mag (2) (1" = 200') with rept. by T. Heale, Aug. 1973
Clifford		Kerr Addison Mines Ltd. "O-11" project also Ben Nevis Tp.	EM (2), Mag (2), (1" = 400'), Mar. 1972; combined EM & Mag (1" = 100'), Mar. 1972 & rept. by G. Hinse, Mar. 1972
Coleman	Con. V, lot 8	Burton, D. "Green Lake"	DH 73-91-1 Jan. 1973; location sketch (1" = 100' & 1" = 400') Jan.-Feb. 1973
	Con. VI, lots 8 & 9	St. Joseph Explorations Ltd. "Sas Lake group" also Bucke Tp.	see under Bucke Tp.
		Campbell, J.	aTr & rTr sketches, Jul. & Sep. 1972
		Silver Shield Mines Inc. "Miho Mine"	DH South Giroux Lake SSS#1, 26 to 27, Oct. 1971 - Mar. 1972; 1" = 20'; DH plans of Cleopatra shaft 1st level (118') (2); Conisil Shaft 3rd & 4th levels (500' & 610') (2); University shaft 3rd level (301'); composite plan of South Giroux levels (1" = 40'), May 1972; rept. by J. E. Armstrong, May 1972
Connaught	SW¼, NE pt.	Goldhurst Resources Inc.	prospectus, Dec. 1972; rept. by C. W. Archibald, Sep. 1972
	NE¼, S pt.	Amalgamated Rare Earth Mines Ltd. "Mid-North Engineering Services Ltd."	Mag & EM (1" = 200') Dec. 1972 & rept. by H. G. Harper Dec. 1972
	NE¼, SW pt.	Conlaton Explorations & Holdings Ltd.	DH C72-1, C72-3 & C72-4, Nov. 1972; locations (2) (1" = 200') Dec. 1972
		Power Explorations & Holdings Ltd. (Active Mines Ltd., Eclipse Metals Ltd. also Maher & Semple Tps.	prospectus, Jun. 1973

Township	Location	Name of property file	Kind of data
Cook	S½	Noranda Exploration Co. Ltd.	EM, Mag (1" = 400'), Jun. 1972 & rept. by T. J. Beesley, Nov. 1972; DH C-73-2, Jan. 1973; location (1" = 400')
		Imperial Oil Ltd. also Benoit, Black, Lee & Nelsonville Tps.	EM (2), Mag (2) (1" = 200'), Mar.-Apr. 1972; DH 3 & 4, Oct.-Nov. 1972; locations & rept. by N. W. Baker, Feb. 1973
	NW¼, N½, Con. VI, lot 2	Marshall, C.	sTr sketches, Jun.-Jul. 1973
Dokis	NE¼, SW pt.	Maguel River Explorations Ltd. "Gilbert, J. A. claims" (Xtra Developments Inc. & New Goldvue Mines Ltd. opt."	Mag. (1" = 100'), Aug.-Sep. 1972, Mag. (1" = 200') Jul. 1972 & repts. (2) by J. A. Honsberger, Jul. 1972 & Sep. 1972; prospectus, Sep. 1972 & Mar. 1973 geol (1" = ¼ mi.), location (1" = 2640'), Nov. 1972
	NE¼, E center	Santa Maria Mines Ltd.	prospectus, Sep. 1973
Donovan		Shortner, G. also Charters and Leith Tps.	see under Charters Tp.
Eby	Con. V, lot 1, N½, S½	Luke, C.	rTr sketch, Jul. 1973
	Con. III, lot 4, S½, SW¼	Hurd, D. F.	rTr sketch, Jun.-Jul. 1973
Edwards	NE¼, E½	Great Bear Silver Mines Ltd.	prospectus, Aug. 1973
English		Dome Mining Co. Ltd. "Matachewan Project" "Clayton, R. H.; Des Rosiers, D. F. claims" also Semple Tp.	see under Semple Tp.
Fawcett		Amax Potash Ltd. also Burrows, Halliday, Knight, Midlothian, Mond & Raymond Tps.	see under Burrows Tp.
		Reylloyd Mines & Explorations Ltd. also Ogilvie Tp.	prospectus Jul. 1973
Flavelle	Con. V, lot 10, N½, SW¼	Welsh, George S.	rTr sketch, Aug. 1973
Frecheville	E center	Caltor Syndicate	Mag, geol & EM (1" = 400'), May 1972 & rept. by W. Gilman & R. J. Bradshaw, Jun. 1972
Gauthier		Upper Canada Resources	geol rept. by D. H. Watkins 1973
		Upper Canada Resources (formerly "McIntosh, G; Carre, J; Potter, G. S.; Bastarche, G; Seal, N. K. claims") also McVittie Tp.	DH 73-1, DH 73-2 Jul. 1973; location (1" = 200')
Gillies Limit		Consolidated Professor Mines Ltd. "Professor Silver Mines, Ltd."; "Professor Consolidated Mines Ltd." also Bucke & Lorrain Tps.	see under Bucke Tp.
	Bl. 8	Consolidated Lowanna Gold Mines Ltd.	prospectus, Feb. 1973; prospectus, Aug. 1973
	Bl. 83, 84, 90 & 91	Mid North Engineering Services Ltd. "Nickel Rim Mines Ltd. - Whitney Lake property"	rTr sketches, May-Jul. 1972
	Bl. 4, N pt.	Nielson, J.	rTr sketch, 1973
	Bl. 24, 34, 35	Murgor Explorations Ltd.	prospectus, Oct. 1972; amendment #1 to prospectus Oct. 1972; rept. by J. P. Jewell, Jun. 1973
	Bl. 83, 84, 90, 91, 95 & 96	Nickel Rim Mines Ltd. "Nimeets opt." et al "Whitney Lake prop."	DH NR-72-1 to NR-72-4, Oct. 1972; locations (1" = 200'), Nov. 1972; rTr & sTr sketches, (1" = 20'), Jul. 1972 & brief rept. by R. I. Benner, Aug. 1972

Township	Location	Name of property file	Kind of data
Gillies Limit	Bl. 58, 67 NW¼ & Bl. 68 NE¼	Lobo Mines & Explorations Ltd.	EM (2), Mag (1" = 200'), Apr. 1971 & rept. by D. Burton, Apr. 1971; geol.(1" = 200') Oct. 1972 & rept. by Robt. Thomson, Oct. 1972
	Bl. 34, 43, 44, 45	Silver Monarch Mines Ltd.	prospectus, Jan. 1973
		Quevillon, G.	sTr sketch May 1972
	Bl. 9 & 17	Homes, K. P.	sTr May-Jun. 1973 (no sketch); sTr sketch, Jul. 1973
	Bl. 2 & 8	Hadden Grey Mining & Exploration Ltd.	DH 72-1, 72-2, 72-3, Sep. 1972; XN's (1" = 100'), Sep. 1972; locations & geol (1" = 200'), Jul. 1972 & & rept. by R. J. Bradshaw, Sep. 1972
	Bl. 3, 4 & 9, N½	Teck Corporation Limited "Silverfields Division" "West Group" "Schaak-Bradley opt."; "Johnson, A. opt." (Keevil Mining Group Ltd.)	DH GL-1 to GL-9, May-Aug. 1972; locations (1" = 200') Mar. 1972; Gc (7) (1" = 200'), Mar. 1973 & rept. by M. Blecha, Mar. 1973
Grenfell	NE¼, NE pt.	Canton Explorations Ltd. "Ellsworth, G. G. claims"	Mag (2), EM (1" = 200') Feb. 1973 & rept. by T. Heale, Feb. 1973
	SW¼, NE pt.	Sullivan, T.	rTr sketch, Sep. 1972
Gulbord	Con. 6, lot 7, S½, NE¼	Core, T.	rTr sketch, May-Jun. 1973
Halliday	center	Carlson, H. D.	rTr (1" = 50' & 1" = 100') May, Jun., Sep. 1972; geol (1" = 400') & rept. by K. H. Darke, Dec. 1972
	S½, center	Salo, A.	geol (1" = 400') & rept by K. H. Darke, Dec. 1972
	NE¼, NW pt.	Noranda Exploration Co. Ltd. "Halliday I-71"	DH H-72-7, Mar. 1972 & vert. XN's (1" = 20'), May 1972 & rept. by E. A. Gallo, Mar. 1972
	W center	Newmont Mining Corp. of Canada Ltd. "Halliday Lake project" "Wilson, W.; Boe, N.; McIntosh, G.; Gonzalez, H.; Alleraton, R. & Warne, F. J. claims" also Sothman Tp.	EM (38), Mag (12) (1" = 200') Mar. 1972 & repts. (3) by E. J. Ballantyne, Apr. May & Jun. 1972; geol (2) (1" = 200') Jun. 1972 & rept. by T. Hopwood, Jul. 1972; Gc (2) (1" = 400') Jun.1972 & rept. by J. A. Coope, Jan. 1973; DH H-1-73 & H-2-73, Apr. 1973; locations (1" = 400'); corresp. from R. Alleraton, Aug. 1973, location map
		Stairs Exploration & Mining Co. Ltd. also Midlothian Tp.	Am, AEM (1" = 1000') rept. by D. H. Waag, 1963
		Amax Potash Limited also Burrows, Fawcett, Knight, Midlothian, Mond & Raymond Tps.	see under Burrows Tp.
	E center	Larche, J. & Rousseau, A. (optioned by Canadian Arrow Mines Ltd.; Glen Copper Mines Ltd.; Newmont Mining Corporation of Canada Ltd.) also Midlothian Tp.	rTr sketch, May 1971; IP (2), Mag, geol (1" = 400'); rTr with assays Jul. 1972; location (1" = ½ mi.); rept. by Jan Klein Aug. 1972; DH 3, 4, 5 & 8 Aug.-Sep. 1972; location (1" = 200'), MS, DH rept. by J. M. Ambrose Oct. 1972; EM, Mag (1" = 200') May 1973 & rept. by E. J. Ballantyne Aug. 1973
Harker		Sclminex Ltd.	Gc (6) (1" = 200') Sep. 1972 & rept. by W. J. Matthews Nov. 1972
Haultain	IN, SW	Hylands-Johnson-Gardner	veins (1" = 10 ch.); sketch plan (1" = 40 ch.) no date
	IN, IW	Wigwam Silver Mines Ltd.	geol (1" = 100') no date
	SE¼, NW pt.	Fogg Syndicate	geol (1" = 10 ch.) no date

Township	Location	Name of property file	Kind of data
Hearst	NW¼, NW pt.	Cantech Resources Ltd. "G. G. Plaskett" also McElroy Tp.	EM (1" = 200') Dec. 1972 & rept. by L. J. Cunningham Dec. 1972
		MacGregor, R. A. also Catharine, McElroy & McVittie Tps.	see under Catharine Tp.
		Hawlund Mines Ltd. also McElroy Tp.	see under McElroy Tp.
	SE¼, SW pt.	Noranda Exploration Co. Ltd. "Hearst 1-72 & Hearst 2-72"	EM, combined EM & Mag (1" = 400'), Nov. 1972 & (2) repts. by W. Lunt, Apr. 1973
		Lowe, D. (Vitro Minerals opt.; Stairs proposed opt.; i.e. Amax opt.) also McElroy Tps.	see under McElroy Tp.
Henwood	Con. III, lot 4	Stone; Eplett	SG determinations 7662' hole
Hincks		Pan-Ore Gold Mines Ltd. also Zavitz Tp.	prospectus, Jan. 1973; rept. by R. L. Halliday, Jan. 1973; loc. (1" = ½ mi.), Mag, IP & R (1" = 200'), IP & R (1" = 400'), EM (2) (1" = 200') Jul. 1973 & rept. by R. Caven Sep. 1973
	SW¼, SW pt.	Sunlaloe, G.	rTr sketch, Oct.-Nov. 1972 & May 1973
Holmes		Canadian Johns-Manville Co. Ltd. "Beaverpond group" also Aima Tp.	see under Aima Tp.
Hutt	NE¼, SE pt.	Dome Mining Co. Ltd. "Matachewan Project" "Rodaing Lake" "Clayton, R. H. claims" "Canoeshed Lake"	EM (1" = 400'), June 1972 & rept. by R. H. Clayton, June 1972; EM (1" = 200'), Jun. 1972 & repts. by R. H. Clayton, Jul. 1972; location (1" = 1320'), Sep. 1971; EM (1" = 400') June 1972 & rept. by R. H. Clayton, Jun. 1972
Ingram	Con. V, VI, lots 10, 11	Marshall, Foster & James	DH 5, May 1973, location
James		Corridor Mines Ltd. (NRG Resources Inc.) "King, H.; Walsh, G. S. claims" also Smyth, Truax, Tudhope Tps.	rTr sketch, Sep. 1969, (1" = 200'); geol, IP, Mag & EM (1" = 200'), & rept. by R. W. Storey, Jul. 1972; sTr sketch, Oct. 1973
		Sturgex Mines Ltd.	prospectus Sep. 1973
		Royex Mining Ltd.	prospectus Sep. 1973
Katrine	SW¼, NW pt.	Noranda Exploration Co. Ltd. "Katrine 1-72"	Mag, EM (1" = 400') Aug. 1972 & rept. by W. E. Lunt, Apr. 1973
		Amax Exploration Inc. also Ben Nevis & Pontiac Tps.	see under Ben Nevis Tp.
Kemp	S½ center	Texasgulf Inc.	Mag, EM (1" = 200') Aug. 1972 & rept. by J. A. Slankis Sep. 1972
Knight		Amax Potash Ltd. also Burrows, Fawcett, Halliday, Midlothian, Mond & Raymond Tps.	see under Burrows Tp.
Law	SE¼, SW pt.	Keith, H. A.	plan loc. sketch; assays, Aug. 1972
Lebel	central pt. of NE¼, NW¼ NW¼	Deloye, E. C.	rTr sketches, May & Jun. 1973; sTr sketch, Jun.-Jul. 1973; sTr sketch. Jul.-Aug. 1973; sTr sketch Sep.-Oct. 1973; sTr sketch Oct.-Nov. 1973
	SW¼, SW pt.	Labine, M. J.	sTr sketch, Jul. 1973
	NW¼, Sw pt.	Allard, C.	sTr sketches, May-Oct. 1973
Lee	NE¼, N center	Imperial Oil Ltd. also Benoit, Black, Cook & Malconville Tps.	EM, Mag (1" = 200') Mar.-Apr. 1972
Leith		Shortner, G. also Charters & Donovan Tps.	see under Charters Tp.

Township	Location	Name of property file	Kind of data
Leonard	NW¼, NW pt.	McGill, K. E.	rTr sketch, Oct. 1972 & Jun.-Aug. 1973
Lorrain		Consolidated Professor Mines Ltd.	see under Bucke Tp.
		"Professor Silver Mines, Ltd.,	
		Professor Consolidated Mines Ltd."	
		also Bucke & Gillies Limit Tps.	
	SW¼, S center	Aggressive Mining Ltd. "J-B property"	prospectus, Feb. 1973; DH J-B 72-1 to J-B 72-3, Nov.-
		(Falconbridge Nickel Mines Ltd. opt.)	Dec. 1972; locations (1" = 200' & 1" = 400'), Nov.
			1972; EM (1" = 200'), Oct. 1972 & rept. by R. I.
			Benner, Oct. 1972; DH J-B 72-4, J-B 72-5, Feb. 1973;
			locations (4) (1" = 200' & 1" = 400'), Nov. 1972; Gc
			(1" = 100') (16 maps), geol (1" = 100') 18 maps) &
			repts. by J. G. MacVeigh Jul. 1973; DH J-B 73-5 -
			J-B 73-8, Feb.-Apr. 1973 locations (1" = 400')
Maisonville		Imperial Oil Ltd. also Benoit,	EM, Mag (1" = 200') Mar.-Apr. 1972 & rept. by M. J.
		Black, Cook, Lee & Maisonville Tps.	Moreau, Apr. 1972; DH 1, 2 & 2A & locations (see DH
			rept. by Baker under Benoit Tp.); turam EM (3)
			(1" = 200'), June 1972 & rept. by Z. Hasan, Mar. 1973 (for all Tps.)
Marriott	NW¼, NE pt.	Whitegate Mining Company Ltd.	prospectus, May 1964
	NE¼, center	Chorzepa, Emil	aTr sketches, Nov., Dec. 1972
Marter	E central	The Hudson Bay Mines Ltd. "Hutchinson,	geol, Gc (3) (1" = 400') & rept. by T. Beesley, Jan.
		R. B. claims" (Noranda Exploration Co.	1973 & A. E. Gallo, Oct. 1972; assays, Jul. & Aug.
		Ltd. "Marter 71-1")	1972; EM & Mag (1" = 400'), Mar. 1972 & rept. by
			E. A. Gallo, Mar. 1972
Matheson	center	Cooper, W.	rTr sketches, May-Jun. 1973
Mickle	NE¼, SW pt.	King, Henry	rTr sketch, Jun. 1972
	NE¼, S½	Collins, F. H.	veins (1" = 2 ch.) (no date)
	NW¼, SW pt.	Welsh Silver Mines Ltd.	rTr sketch, Jul.-Sep. 1973
	NE¼, center	Cameron, J. A.	rTr sketch, Apr.-Jul., Sep.-Oct. 1973
Middleton	center pt.	Allied Mining Corp. Ltd.	DH 502, 504 to 507, Oct. to Dec. 1972; XN's (5),
			(1" = 50', 1" = 60' & 1" = 100'), Oct.-Dec. 1972;
			locations (1" = 400'), Nov. 1972
		Amax Potash Ltd. also Burrows, Fawcett,	see under Burrows Tp.
		Halliday, Knight, Mond & Raymond Tps.	
		Stairs Exploration & Mining Co. Ltd.	see under Halliday Tp.
		also Halliday Tp.	
	center pt.	Stump Mines Ltd. "Lloyd Lake property"	DH 508 & 509, Jun.-Jul. 1973, locations (1" = 300'),
			XN (1" = 100')
		United Asbestos Inc.	Letter by J. C. Shaw, Oct. 1973
		(see also Allied Mining Corp. Ltd.)	
	center pt.	Tojaro Holdings Ltd.	Mag (1" = 200') & rept. by D. F. DesRosiers, Aug. 1973;
			loc. (1" = ¼ mi.), Aug. 1973
	NW¼, SW pt.	Larche, J. & Rousseau, A. (opt. by Canadian	see under Halliday Tp.
		Arrow Mines Ltd.; Glen Copper Mines Ltd.;	
		Newmont Mining Corp. of Canada Ltd.) also	
		Halliday Tp.	

Township	Location	Name of property file	Kind of data
Milner	3N 2W	Boyd-Gordon Mining Co. Ltd. (Manridge Mines Ltd.) "Boyd-Gordon Mine"	veins (1" = 10 ch.) Nov. 1908
Moher	NE¼, SE pt.	Eclipse Metals Ltd. also Semple Tp.	Gc, EM (2) (1" = 200'), Sep. 1971 & rept. by C. W. Archibald, Sep. 1971
		Power Explorations & Holdings Ltd. (Active Mines Ltd., Eclipse Metals Ltd.) also Connaught & Semple Tps.	see under Connaught Tp.
Mond		Amax Potash Ltd. also Burrows, Fawcett, Knight, Halliday, Midlothian & Raymond Tps.	see under Burrows Tp.
Montrose	SW¼, center	Dome Mining Co. Ltd. "Matachewan Project" "Montrose 6-5" "Clayton, R. H. & Des Rosiers, D. F. claims"	EM (1" = 200'), Jun. 1972 & rept. by R. H. Clayton, Jul. 1972; EM (1" = 400'), Oct. 1971 & rept. by R. H. Clayton, Jul. 1972
Morrisette		Deloye, E. C. also Bernhardt Tp.	see Under Bernhardt Tp.
	SW¼, SW pt.	Chorzepa, E.	sTr sketches, Jan.-Oct. 1973
Mulligan	SW¼, NW pt.	Taylor, T. C.	DH 4 & 5, May-Jul. 1973; locations
Munro	Con. I, lots 1, 2 & 3	Lee Geo-Indicators Ltd.	Gc (1" = 400') Oct. 1972 & rept. by D. H. Frobel, Oct. 1972; assay results Aug.-Nov. 1972; EM (1" = 400') Dec. 1972 & rept. by Karl Glackmeyer, Dec. 1972; Gc (1" = 400') Oct. 1972 & repts. by David H. Frobel, Dec. 1972
	Con. III & IV, lots 8, 9 & 10	Surge Mines Ltd.	EM, Mag, geol (1" = 400') Aug.-Sep. 1972 & rept. by J. R. Boissoneault Oct. 1972
	Con. V, lot 10, S½, NW¼	Hurd, D. F.	rTr sketch, Jun.-Dec. 1972
	Con. IV & V, lots 5, 6 & 7	Canadian Johns-Manville Co. Ltd. "Potter-Osal group" (see also Potter, R. S.; Centre Hill Mines Ltd.)	DH 1 to 3, Nov. 1949
McAuslan	NE¼, NE pt.	Iron City Mines Ltd. also Parkman Tp.	see under Parkman Tp.
	SE¼, NE pt.	Haberer, Joseph	rTr sketch, Oct. 1972
	SW¼, SW pt.	Mato, G. M.	rTr sketches, May-Jul. 1973
McCann	Con. V, lot 8 S½, SE¼	Taylor, B.	rTr Jul. 1973
		Sherwin Minerals Ltd. also Playfair Tp.	prospectus, May 1973
McCool	Con. I & II, lots 5 & 7	Alexander Red Lake Mines Ltd.	Mag (2), EM, geol (1" = 200'), Aug. 1972 & rept. by D. G. Wahl, Aug. 1972
	Con. I, lot 1	Naumont Mining Corporation of Canada Ltd.	Mag, EM (1" = 200') Feb. 1973 & rept. by E. J. Ballantyne, Mar. 1973
	Con. I & II, lots 5, 6 & 7	Bonnacord Explorations Ltd. (Gunnex Limited; Alexander Red Lake Mines Ltd.)	prospectus, May 1973; DH B73-A1 - B73-B2, Aug.-Sep. 1973; locations (1" = 200')

Township	Location	Name of property file	Kind of data
McElroy		Cantech Resources Ltd. "Plasket, G. G."	see under Hearst Tp.
		also Hearst Tp.	
	SE¼, SE pt.	Asbestos Corporation Ltd.	rept. by J. H. Low, Aug. 1950; geol, Mag (1" = 200'),
		also Catharine & Skead Tps.	Jun. 1950
		MacGregor, R. A.	see under Catharine Tp.
		also Catharine, Hearst & McVittie Tps.	
	SE¼, SE pt.	Newlund Mines Ltd. also Hearst Tp.	DH 1 to 4, May 1973; locations (no scale)
	SW¼, SE pt.	Kosy, R.	DH 73-1 to 73-3, Aug. 1973
	NE¼, NE pt.	Lowe, D. (Vitro Minerals opt.; Stairs	rTr sketch (1" = 400'), Apr.-Oct. 1973
		proposed opt.; I.e. Amax opt.)	
		also Hearst Tp.	
McGarry	NE¼, NE pt.	Walker, J.	DH 1 & 2, locations, Jul. & Aug. 1972; DH 3 & 4 Jul.
			& Aug. 1973 & locations
MacMurchy	NE¼, NE pt.	Decker, A.	rTr sketches, Apr.-May 1973
	NW¼, SE pt.	Brunet, C. W.	property plan & rept. by C. W. Brunet, Mar. 1973
McVittie	NE¼, SW pt.	Bustraen, M.	DH6 & 7, Jul. & Oct.-Nov. 1972; locations; rTr sketches,
			Jul. 1972; assay results, rTr sketches Jun. & Jul. 1972;
			rTr sketches, May & Jun. 1973; rTr sketch, Jul. 1973
			DH 8-10 & locations Jul.-Sep. 1973
	NW¼, NW pt.	Hennis, T.	rTr sketch, Jul.,Aug. & Nov. 1972
		MacGregor, R. A.	see under Catharine Tp.
		also Catharine, Hearst & McElroy Tps.	
		Upper Canada Mines, Ltd.	see under Gauthier Tp.
		"formerly McIntosh, G.; Carre, J.;	
		Potter, G. S.; Basterche, G.; Seal,	
		N. K. claims" also Gauthier Tp.	
	S½, center	Card Lake Copper Mines Ltd.	prospectus, Jul. 1972
	S½, center	Kesner, R. "Kesner-Hurd claims"	Mag (1" = 200'), Jun. 1973 & rept. by E. W. Bazinet,
			Jun. 1973
	SW¼, SE pt.	Bustraen, R.	rTr sketch, Jul. 1973
Nicol	6N 3W	Coleroy Silver Mines Ltd.	composite levels plan (1" = 40') & vertical XN's of
			shaft (1" = 20'), Feb. 1925
	5N 4W	Hylands-Johnson-Gardner	geol (1" = 5 ch.); veins (1" = 10 ch.) (2 versions)
	2N 5W	Miller	geol by Miller, Aug. 1909; sketch plan (no scale),
			May 1912
	6N 2W	Silver Bullion	property plan (1" = 40 ch.), Oct. 1920
	5N, 3 & 4W	Plata Mines Ltd.	geol (1" = ¼ mi.)
Nursey		Dome Mining Co. Ltd. "Edlestone Lake prop."	EM (1" = 200'), May 1972 & rept. by R. H. Clayton,
		"Clayton, Des Rosiers, Armand claims,	Jul.1972; geol (2) (1" = 200'), Jul. 1973 & rept. by
		Aube claims" also Sothman Tp.	D. F. Des Rosiers, Aug. 1973
Ogilvie	NE¼	Raylloyd Mines & Explorations Ltd.	see under Fawcett Tp.
		also Fawcett Tp.	
Olive	NE¼, NW pt.	Keith, J. F.	sTr sketch, Jun., Oct. 1973
Pacaud	SW¼, SW pt.	Leskowski, H.	rTr sketch, Jul. 1972 to Jun. 1973
Pardo		Sirois, J. "Austin Bay"	see under Vogt Tp.
		also Vogt Tp., Timagami area	

Township	Location	Name of property file	Kind of data
Parkman	SE¼, SW pt.	Iron City Mines Ltd. also McAuslan Tp.	assays Aug. 1972; Mag (1" = 200'), Oct. 1972 & rept. by A. Hopkins, Oct. 1972; DH 72-2 to 72-4, Oct.-Nov. 1972, locations (1" = 200'); DH 72-5 & 72-6, Apr.-May 1973; locations (1" = ½ mi.) Oct. 1972 & (1" = 200'), May 1973
Pense	NE¼, SE pt.	The Hudson Bay Mines Ltd.	DH 15 & 16, Apr. 1972 with locations & XN's (1" = 50')
Phyllis	NE¼	Empire Explorations Ltd. "Phillip's Bay project"	DH 751-54; 759; 763-764; 767; 771; 772; 774; 777; 778; 784; 786 Oct.-Dec. 1968 & Jan. 1969; 4-562; 4-566; 4-585; 4-605; 4-610; 4-635; 8-623-24; 8-626; 8-629; 8-625 Nov.-Dec. 1970 & Jan to Jun. 1971; DH WT-27; WT-33 & 34; WT-36 - 38; WT-44 & 46; PB-1 to 11; Sep.-Oct. 1961 & Jan. 1962; plans of 400' & 825' levels (1" = 100'), Dec. 1972 & DH Sp (4), R (4), geol (5), Jul. & Nov. 1961 & Jul. 1962 & repts. by K. F. O'Flaherty, Nov. 1961 & Apr. 1962; plans of 400' & 825' levels (1" = 100'), Dec. 1972 & DH's
Playfair		Sherwin Minerals Ltd. also McCann Tp.	see under McCann Tp.
	Con. VI, lot 11	Ferguson, John D. & Kakish, J. "K & F property"	EM, Mag (1" = 200'), Apr. 1973 & rept. by H. G. Harper, Apr. 1973
Pontiac	Center S	Kerr Addison Mines Ltd. "Pontiac proj. O-23"	EM, Mag (1" = 400') Oct. 1972 & rept. by G. Hinse, Oct. 1972 with staking plan (1" = ½ mi.)
		Amax Exploration Incorporated also Ben Nevis & Katrine Tps.	see under Ben Nevis
Powell	NW¼, central pt.	Carlton Explorations Ltd.	rept. by J. D. McConnell, Jan. 1973; prospectus, Jan. 1973; DH C-1 to C-5, May-Jun. 1973; locations (1" = 200'); Mag-EM (1" = 200') & rept. by J. D. McConnell, Apr. 1973; geol (1" = ½ mi.), Jan. 1973
	NW¼, NW pt.	Nautilus Explorations Ltd.	DH N-1 to N-5, Dec. 1972-Feb. 1973; locations (3) (1" = 200'); geol, Mag & EM (1" = 200') Sep. 1972 & rept. by J. D. McConnell Sep. 1972
	NE¼, central pt.	Canadian Johns-Manville Co. Ltd. "Brookbank, L. claims"; "Welsh group" also Bannockburn Tp.	Gc (6) (1" = 200') Jan. 1972 & rept. by P. A. R. Brown Jan. 1972; Gb (2), EM, Mag (1" = 200'); AM with geol (1" = 1320') Jan. 1973 & rept. by F. J. Evelegh Jan. 1973
	SW¼, W pt.	British Matachewan Gold Mines Ltd.	tursm, chargeability, R profiles (10) (1" = 200') & rept. by R. K. Watson, Feb. 1973
	Center E	Byles, G.	sTr sketch, Aug. 1973
	SE¼, central pt.	Welsh, G. S.	rTr sketch, Sep., Nov. 1973
Raymond		Amax Potash Ltd. also Burrows, Fawcett, Knight, Halliday, Midlothian & Mond Tps	see under Burrows Tp.
Riddell	center	Goldex Mines Ltd. "Boulton Lake group"	DH G-1-72 to G-3-72, Aug.-Oct. 1972; locations with geol (1" = 833') Aug. 1972; vert. & plans (1" = 50'), Aug. 1972 & rept. by B. H. Thornley, Sep. 1972

Township	Location	Name of property file	Kind of data
Semple	NE¼	Dome Mining Co. Ltd. "Matachewan Project" "Clayton, R. H. & Des Rosiers, D. F. claims" also English Tp.	EM (1" = 400'), Jun. 1972 & rept. by R. H. Clayton, Jul. 1972
		Eclipse Metals Ltd. also Maher Tp.	see under Maher Tp.
		Power Explorations & Holdings Ltd. (Active Mines Ltd., Eclipse Metals Ltd.) also Connaught & Maher Tps.	see under Connaught Tp.
Skead		MacGregor, R. A. (Selco Mining Corp. Ltd.) also Catharine Tp.	see under Catharine Tp.
		Asbestos Corporation Ltd. also Catharine & McElroy Tps.	see under McElroy Tp.
	Con. VI, lot 5, N½, NE¼	Kozdas, A.	aTr sketch, Jun., Jul., Sep. 1972 & May 1973
	Con. VI, lots 8 & 9	Noranda Exploration Co. Ltd. "Skead 1-72"	EM (2), Mag (1" = 400'), Dec. 1972 & repts. by W. E. Lunt, Apr. 1973
Smyth		Corridor Mines Ltd. (NRG Resources Inc.) "King, H., Walsh, G. S. claims" also James, Truax & Tudhope Tps.	see under James Tp.
Sothman		Dome Mining Co. Ltd. "Edlestone Lake prop." "Clayton, Des Rosiers, Armand, Aube claims" also Nursey Tp.	see under Nursey Tp.
		Newmont Mining Corp. of Canada Ltd. "Halliday Lake project" "Wilson, E. Boe, N.; McIntosh, G.; Gonzalez, H.; Alleraton, R. & Warne, F. J. claims" also Halliday Tp.	see under Halliday Tp.
South Lorrain	NE¼, NE pt.	Miller	geol (1" = ½ mi.), location (1" = ½ mi.) & rept. by K. F. O'Flaherty Dec. 1971
Steele	NE¼, NW pt.	Darby, L.	rTr sketch (1" = 50'), Jul.-Sep. 1972; aTr sketch (1" = 200') Jun.-Aug. 1973
Strathcona	NE¼, SW pt.	Foxdale Mines Ltd. "Hames, C. M. claims"	DH S-1 & S-2, Oct. & Dec. 1972; locations (1" = 200'), Oct. & Dec. 1972; IP (2), EM (2), geol (4) (1" = 200') Jul.-Aug. 1972 & rept. by T. Heale, Dec. 1972; IP (5 sections) (10) & rept. by J. D. Crone Aug. 1972
	E center	Royal Mining Corporation	DH S-1 & S-2, Jan. 1973; locations (1" = 100'), Mag (2) (1" = 200') & rept. by Jan Klein, May 1972
	SE¼, SW pt.	Johnston, H. O.	aTr sketches, Jul.-Dec. 1969; rTr sketch May-Nov. 1970; rTr sketch, May-Oct. 1972
Strathy	SW¼, NE pt.	Ajax Minerals Ltd.	correspondence Apr. to Jul. 1972
		Stull, W. W.	DH sketches, Feb. & Mar. 1917 (1" = 20'), (1" = 30') & (1" = 200')
	W½, center	Kanichee Mining Incorporated	aTr, surf. map (1" = 200'), Jan. 1973
Taylor	Con. II, lots 10, 11 & 12	Quebec Sturgeon River Mines Ltd.	prospectus, Aug. 1972
	Con. III, lot 7	Turney, W.	DH 6 & 7, 1971 & 1972 & rept. by Jan de Grijs, May 1973
	Con. IV, Lot 7, S½	Windfall Oils and Mines Ltd.	Mag, EM (1" = 200') with rept. by S. S. Szetu, Aug. 1973

Township	Location	Name of property file	Kind of data
Teck	SW¼	Deloye, E. C.	rTr (4) sketches, May-Jun. 1973
	SE¼, NE pt.	Duffy, D.	sTr sketch May-Aug. 1973
	S½	Dana, R. E. (Orme Prospecting Syndicate)	DH 73-1, 73-2, 73-3, Oct. 1973; locations (1" = 100') (2) XN's (1" = 20') (2); locations (1" = ¼ mi.) (2)
Timagami Area		Sirola, J. "Austin Bay" also Vogt & Pardo Tps.	see under Vogt Tp.
Truax		Corridor Mines Ltd. (NRG Resources Inc.) "King, H.; Welsh, G. S. claims" also James, Smyth & Tudhope Tps.	see under James Tp.
Tudhope		Corridor Mines Ltd. (NRG Resources Inc.) "King, H.; Welsh, G. S. claims" also James, Smyth & Truax Tps.	see under James Tp.
		Consolidated Boeing Holdings & Resources Ltd. also Bryce Tp.	see under Bryce Tp.
Tyrrell	NW¼, NW pt.	Anglehart, E.	EM, Mag (1" = 200'), Oct. 1972 & brief rept. by Maxwell Juby, Nov. 1972
	central pt.	Saville, S.	rTr sketch, Jul. 1972
	NW¼, NW pt.	Bay Roc Mining Company Ltd.	prospectus, May 1973
Van Hise	SE¼, SE pt.	Diabase Lake	geol (1" = 9 ch.), 1924
Vogt		Sirola, J. "Austin Bay" also Pardo Tp., Timagami area	rept. (2) by J. Sirola, May 1955 & Aug. 1955
Wilkie	W½	Noranda Exploration Co. Ltd. "Wilkie 1-71" (see also Boulleu-Coderre-Thompson; Dom. Gulf "Walker-Wilkie I"; Hollinger Consol. "Block C"; Continental Copper Mines Ltd.)	EM, Mag (1" = 400'), Sep. 1972 & rep . by T. J. Beesley, Dec. 1972; DH W-73-5 & W-73-6; locations (1" = 400')
Wyse	NW¼, NW pt.	Haberer, J.	rTr sketch, Jul. 1972
Zavitz		Pan-Ore Gold Mines Ltd. also Hincks Tps.	see under Hincks Tp.

Table 7 Airborne Geophysical Surveys

LARDER LAKE MINING DIVISION

NO.	CLIENT	CONTRACTOR	TYPE	YEAR	AREA	TP. OR FILE NO.
1	Canadian Javelin Ltd.	Canadian Aero Mineral Surveys Ltd.	Mag, EM	1965	Joe Lake Area	Abbotsford, Adair, Hepburn
2	Titan Iron Mines Ltd.	Lockwood Survey Corporation	Mag	1966		Angus, Flett
3	Amax Exploration Inc.	Seigel Associates Ltd.	Mag, EM	1971	Ben Nevis Area	Ben Nevis, Pontiac, Katrine
4	Cominco Ltd.	Scintrex Ltd.	EM	1971	Captain Lake	Ben Nevis
5	Knox	Aerophysics of Canada Ltd.	EM	1957	Boston, McElroy	Boston, McElroy
6	Copperfields Mining Corporation Ltd.	Digham Ltd.	EM	1970		Briggs, Strathcona, Yates, etc.
7	Raylloyd Mines and Exploration Ltd.	Barringer Research	EM	1968		Bryce, Tudhope
8	Moncrieff Uranium Mines Ltd.	Questor Surveys Ltd.	EM	1970		Catharine
9	Socrates Mining Corp. Ltd.	Geophysical Eng. & Surveys Ltd.	Mag, EM	1964		Clement
10	Bardyke Mines Ltd.	Lundberg Exploration Ltd.	Mag	1956		Connaught
11	Union Carbide Canada Mining Ltd.	Canadian Aero Mineral Surveys Ltd.	Mag, EM	1964		Coulson, Milligan, McCool, Warden
12	Canadian Javelin Ltd.	Canadian Aero Mineral Surveys Ltd.	Mag, EM	1964		Edwards, Mortimer
13	Glen Lake Silver Mines Ltd.	Hunting Survey Corporation	Mag, EM	1962		Mortimer, Edwards, Sherring, Wesley, Etc.
14	Patino Mining Corporation, The	Questor Surveys Ltd.	EM	1971		Frechevilie, Lamplugh, Stoughton
15	North American Rare Metals Ltd.	Hunting Survey Corporation	Mag, EM	1962		Galna, Marathon, Moody, etc.
16	Upper Canada Mines Ltd.	Canadian Aero Mineral Surveys Ltd.	Mag, EM	1964		Gauthier, McVittie
17	Consolidated Renwick Uranium Mines Ltd.	Aeromagnetic Surveys Ltd.	Mag, Rad	1954		Gulbord, Munro, Michaud
18	Corridor Mines Ltd.	Spartan Aero Ltd.	Mag, EM	1971		James, Tudhope
19	Timiskaming Nickel Ltd.	Huntec (Lockwood Survey)	Mag, EM	1968		Kelvin
20	Timiskaming Nickel Ltd.	Huntec (Lockwood Survey)	Mag, EM	1968		Knight, Natal, Tyrrell, Macmurchy
21	Bittaurum Mines Ltd.	Lundberg Exploration Ltd.	EM	1952		Knox, Rickard
22	Boland-Bell	Canadian Aero Mineral Surveys Ltd.	Mag, EM	1965		Malba
23	Laronde Midlothian Mines Ltd.	Canadian Aero Mineral Surveys Ltd.	Mag, EM	1963		Midlothian
24	Stairs Exploration	Canadian Aero Mineral Surveys Ltd.	Mag, EM	1963		Midlothian
25	H. H. Wright Syndicate	Canadian Aero Mineral Surveys Ltd.	Mag, EM	1964		Milligan
26	Kennco Explorations (Canada) Ltd.	Canadian Aero Mineral Surveys Ltd.	Mag, EM	1964		Munro, Milligan, Warden, Kerrs
27	Canadian Johns Manville Co. Ltd.	Hunting Survey Corporation	Mag	1964		Skead, McElroy
28	Denison Mines Ltd.	Canadian Aero Mineral Surveys Ltd.	Mag, EM	1965		McNeil, Robertson
29	Keavil Mining Group Ltd.	Canadian Aero Mineral Surveys Ltd.	EM	1964		Rand
30	Argentium Silver Mines Ltd.	Canadian Aero Mineral Surveys Ltd.	EM	1969	Anvil Lake Area	Speight, Whitson, Van Nostrand
31	Goldfields Mining Corporation Ltd.	Geophysical Eng. & Surveys Ltd.	Mag, EM	1963		Strathy
32	Keavil Mining Group Ltd.	Geophysical Eng. & Surveys Ltd.	Mag, EM	1965	Temagami Townsite	Strathy, Cassels, Strathcona
33	Sutherland, W. D.	Huntec (Lockwood Survey)	Mag, EM	1968		Van Hise
34	Taylor Gold Mines Ltd.	Canadian Aero Mineral Surveys Ltd.	Mag, EM	1964		Taylor
35	North American Rare Metals Ltd.	Lundberg Exploration Ltd.	Mag	1956		Phyllis
36	Geoscientific Prospectors	Mining Geophysics Ltd.	Mag			Phyllis
37	Geoscientific Prospectors	Mining Geophysics Ltd.	Mag			Powell, Cairo, etc.
38	Satellite Metal Mines Ltd.	M. J. Doyen Eng. Associates	Mag, Rad	1968		Gauthier
39	Hudson Bay Expl. & Dev. Co. Ltd.	Canadian Aero Mineral Surveys Ltd.	Mag, EM	1964	Big Four Lake	Macmurchy, Kelvin, Natal, Churchill
40	Collins, R., Collins, Y., Marine, L., McKinnon, D., Todd, B.	Geoterrex Ltd.	Mag, EM	1971		Connaught, Brunswick
41	Alexo Extension Mines Ltd.	Canadian Aero Mineral Surveys Ltd.	Mag, EM	1964		Taylor, Walker, Clergue, Stock
42	Timiskaming Nickel Ltd.	Huntec (Lockwood Survey)	Mag, EM	1968		Midlothian
43	Canadian Johns Manville Co. Ltd.	Survair Ltd.	Mag	1969		Midlothian
44	Kennco Explorations (Canada) Ltd.	Questor Surveys Ltd.	Mag, EM	1968		Dana, Davis, Clement, Pardo

RED LAKE DISTRICT

By

A.P. Pryslak

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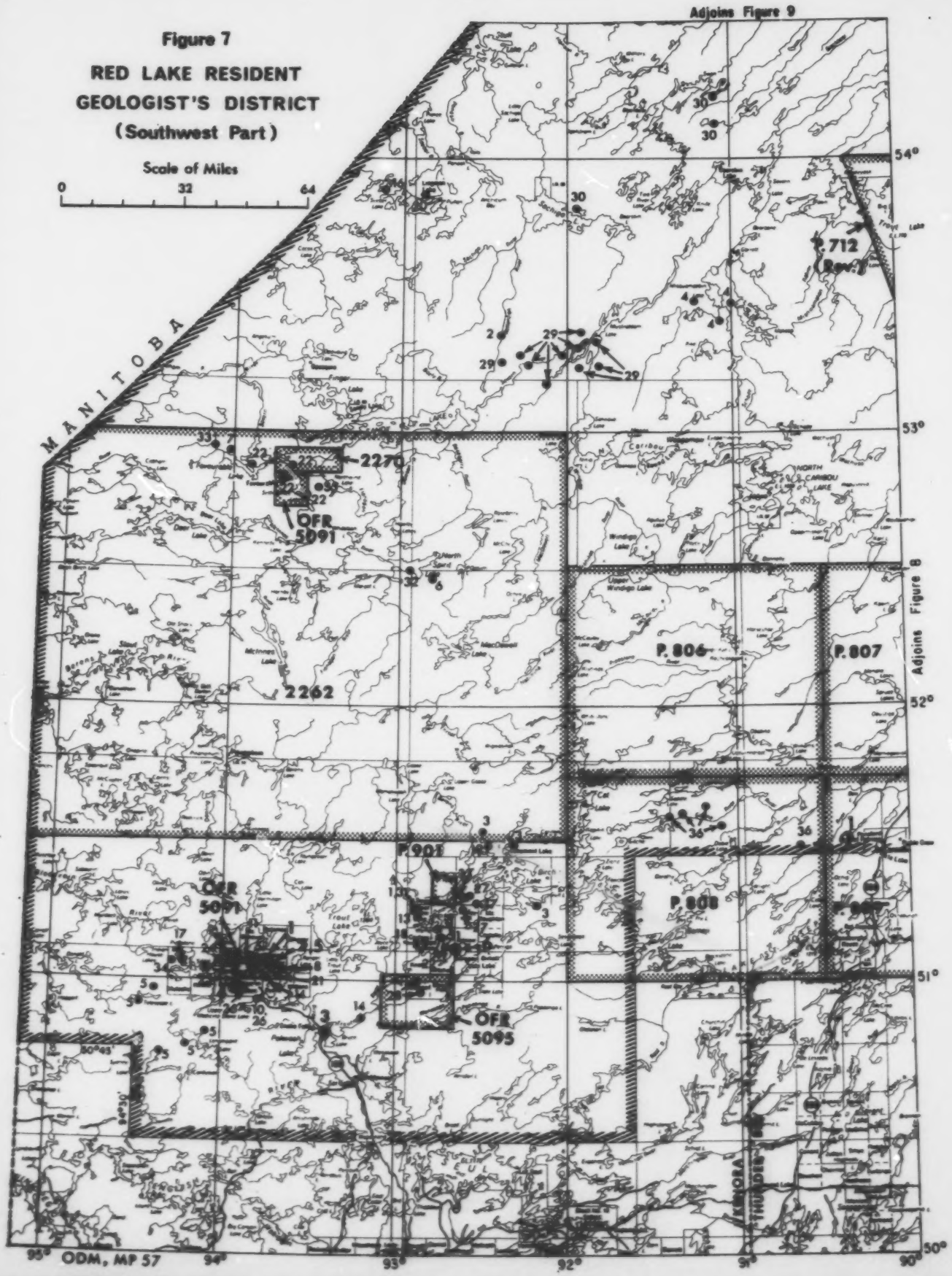
Figure 7

RED LAKE RESIDENT GEOLOGIST'S DISTRICT (Southwest Part)



ODM, MP 57

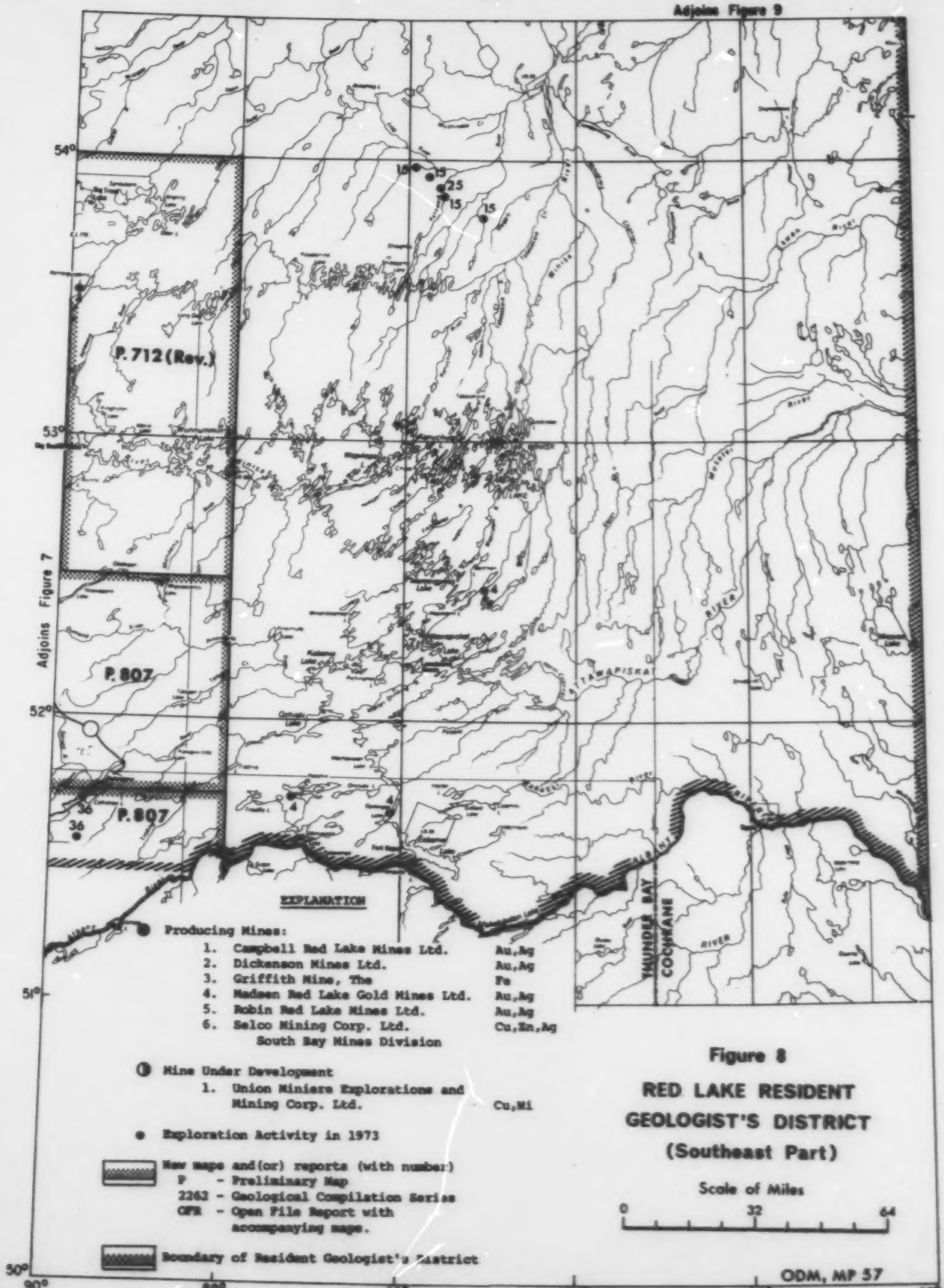
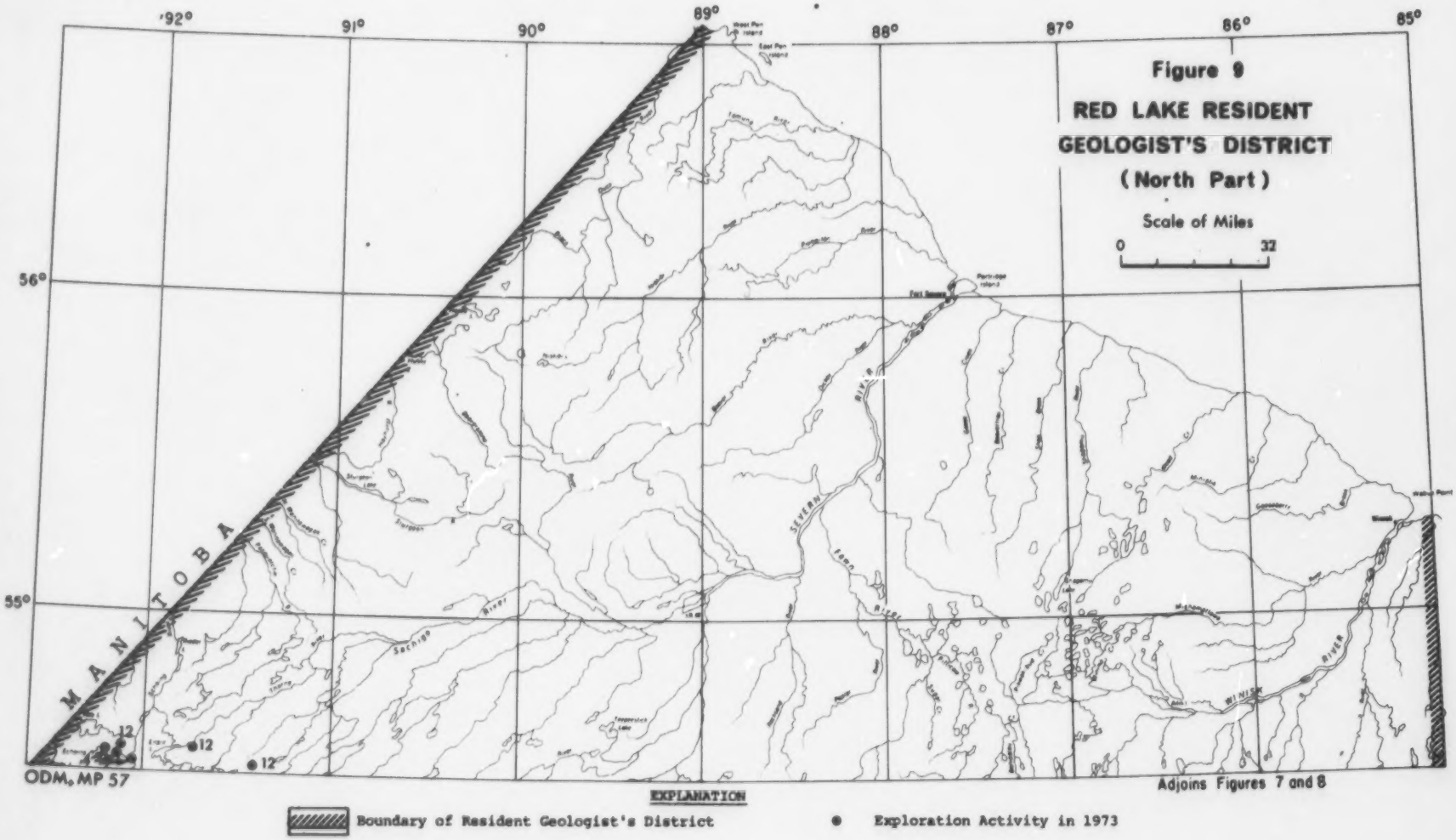


Figure 8

RED LAKE RESIDENT GEOLOGIST'S DISTRICT (Southeast Part)


92°
91°
90°
89°
88°
87°
86°
85°
56°
55°
MANITOBA
Sachigo River
SEVERN
RIVER
WINISK
RIVER
12
12
12
ODM, MP 57
Adjoins Figures 7 and 8
Figure 9
RED LAKE RESIDENT
GEOLOGIST'S DISTRICT
(North Part)
Scale of Miles
0
32
EXPLANATION
Boundary of Resident Geologist's District
Exploration Activity in 1973

RED LAKE DISTRICT

By

A.P. Pryslak[1]

RESIDENT GEOLOGIST'S ACTIVITIES

The writer assumed the duties of Resident Geologist at Red Lake on January 1, 1973. Geological assistant L.A. Perrie and high school graduate C. Symondson were employed during the summer months. On November 7th., W. Valliant was appointed on probationary staff as geological assistant. J. Smith is secretary for this office.

Consultation on various aspects of geology with prospectors, mineral exploration personnel, and university staff was the most actively solicited service provided by the writer. Some of the other duties included administration, identification of mineral specimens for the public, collecting data by the examination of mineral deposits, and compilation and filing of exploration data. Short visits were made to the operations of the Campbell Red Lake Mines Limited, Dickenson Mines Limited, The Griffith Mine, Madsen Red Lake Gold Mines Limited, and South Bay Mine of Selco Mining Corporation Limited. Several days were spent with each of the field parties from the Precambrian Geology Section of the Geological Branch which were located in the Uchi Lake and North Spirit Lake areas. Several field trips were organized for the district high school and public school students. During the course of the year, the convention of the Prospectors and Developers Association in Toronto and the Geological Branch field trip in the Timmins area were attended.

Some of the writer's time was devoted to strategic land use planning activity. In the Treaty No. 9 area, north of Latitude 52°45'N and west of Longitude 88°57'W, certain Indian Reserve lands are to be exchanged for other Crown land. The designated Reserve lands and surrounding areas were withdrawn from staking. A geological assessment of the proposed Reserve lands was carried out for the Regional office of the Ministry of Natural Resources.

"Two areas have been designated as park reserves in the Red Lake area. The previously designated Woodland Caribou Park Reserve is located west of Ball and Mulcahy Townships and extends to the Manitoba Boundary. This area has been withdrawn from staking. A second area has now been designated for the southern part of the Trout Lake area. This area includes part of the shore to the southwest of Cat Island and the northeast-trending peninsula between Trout Lake and Otter Lake."

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[1]Resident Geologist, Ontario Ministry of Natural Resources, Provincial Building, Howey Street, Red Lake. Manuscript approved for publication by the Chief, Geoservices Section, Geological Branch, Ontario Division of Mines, 22 February 1974.

Revision of the Mineral Map of Ontario by the Geological Branch, commenced in 1973 for publication in 1974. Data for the Red Lake Resident Geologist's area was supplied by the writer and his assistant.

In addition to the duties associated with the Resident Geologist's office, the writer continued work on a geological report on the geology and mineral deposits of Dent, Mitchell, Knott, and Corless Townships and on geological maps of the Shabumeni River area.

GEOLOGICAL BRANCH ACTIVITIES

During the month of November, an 18-hour "basic" course in mineral exploration was given by geological lecturer E. Blunden of the Geoscience Information Office, Geoservices Section, Toronto. Assistance in discussions on local geology was provided by the writer.

Staff from the Precambrian Geology Section directed two projects in the Red Lake Mining Division and one project in the Patricia Portion of the Red Lake Geologist's District. J. Wood, P. Thurston, and H. Wallace conducted detailed geological mapping in the Hewitt Lake (North Spirit Lake), Earngey and Birkett Townships, and the Opikeigen Lake (Fort Hope) areas, respectively. Summary reports of their projects appear in Miscellaneous Paper 56 (Milne, Hewitt, and Wolfe 1973).

MINERAL AND EXPLORATION ACTIVITY

In comparison with 1972, the exploration activity in 1973 in the Red Lake Mining Division was subdued. This was shown by the decrease in staking activity with 1,616 claims being recorded, down from 2,219 in 1972. Sixty-five percent of the claims were staked in the first quarter (data from Mining Recorder's Office, Red Lake).

Both staking and exploration activity decreased from the high level experienced several years ago in the Patricia Portion of the Red Lake Resident Geologist's District.

Although fewer exploration programs were initiated in 1973, assessment work credit (in days) increased by about 45 percent over 1972 (data from Mining Recorder's Office, Red Lake). There was an increase in the number of exploration programs to test gold deposits. Some of the major programs were carried out by the following companies: Cochenour Willans Gold Mines Limited (Wilmar prospect, Dome Township), Xtra Developments Incorporated (St. Fabian Copper Mines Limited option, Dome Township), Kerr Addison Mines Limited (Cole Gold Mines Limited option, Ball Township), and South Bay Mine of Selco Mining Corporation Limited (Bathurst mine optioned from All Canadian Mining and Exploration Company Limited).

A review of exploration activities known to have been carried out in the Red Lake Resident Geologist's District in 1973 is given in Table 8.

During the summer, reconnaissance geological mapping was carried out by The Center for Precambrian Studies at the University of Manitoba, in the Hornby-Findlay Lakes area and in the Longlegged-Sydney Lakes area. Data and rock specimens collected during the course of field work are being used for further studies in evaluating the economic potential of these two areas which are underlain by gneissic rocks. Sulphide mineralization is known to occur in the Hornby-Findlay Lakes area and a Cu-Zn-Ag prospect, held by Cochenour Willans Gold Mines Limited, occurs in the Sydney Lake area. An interim report on these and other projects carried out by The Center for Precambrian Studies is expected to be released in early 1974.

Mineral Exploration Assistance Program

The provincial government Mineral Exploration Assistance Program (MEAP) continued in the Red Lake District for the third year. Eleven new contracts were signed with a total exploration value of $663,503.00 and a government commitment of $221,167.67. To November 30, 1973, actual company expenditures for the designated area of Red Lake totalled $454,551.71 and government payments totalled $147,021.29 (includes expenditures for only one of the eleven contracts issued in 1973).

NEW ODM MAPS AND REPORTS ISSUED IN 1973

The following is a list of publications released in 1973 which pertain, in whole or in part, to the Red Lake Resident Geologist's district.

P.712 Rev. Operation Winisk Lake: Wunnummin Lake-Big Trout Lake, District of Kenora (Patricia Portion) (53H, 53A). Geology by P.C. Thurston, R.P. Sage, and G.M. Siragusa, 1971. Revised 1973. Scale, 1 inch to 2 miles.

P.806 Operation Pickle Lake: Upper Windigo Lake-Horseshoe Lake Sheet, District of Kenora (Patricia Portion) (52O, 53B). Geology by R.P. Sage, F.W. Breake, W.R. Troup, and assistants, 1972. Scale, 1 inch to 2 miles.

P.807 Operation Pickle Lake: Forester Lake-Wigwascence Lake Sheet, District of Kenora (Patricia Portion) (52O, 52P, 53A, 53B). Geology by R.P. Sage, F.W. Breaks, W.R. Troup and assistants, 1972. Scale, 1 inch to 2 miles.

P.808 Operation Pickle Lake: Bamaji Lake-Lake St. Joseph Sheet, District of Kenora (Patricia Portion) (52O). Geology by R.P. Sage, F.W. Breaks, W.R. Troup and assistants, 1972. Scale, 1 inch to 2 miles.

P.809 Operation Pickle Lake: Achapi Lake-Misehkow River Sheet, District of Kenora (Patricia Portion) (52O, 52P). Geology by R.P. Sage, F.W. Breaks, W.R. Troup and assistants, 1972. Scale, 1 inch to 2 miles.

P. 845 Summary of Airborne Geophysical Data for Northwestern Ontario on File at the Resident Geologist's Offices at Kenora, Red Lake, and Thunder Bay, (42, 43, 44, 52, 53, 54), Data Series Map. Compilation by R.A. Riley, H.L. King and C.R. Kustra, 1970, 1971, 1972. Scale, 1 inch to 16 miles.

P.901 Shabumeni River-Narrow Lake Area (Northeastern Part), District of Kenora (Patricia Portion), (52N/7). Geology by A.P. Pryslak and assistants, 1972. Scale, 1 inch to ½ mile.

Map 2262 Favourable Lake-Berens Lake, Kenora District (52M, 52N, 53C, 53D). Geology and geological compilation by L.D. Ayres, M. Raudsepp, S.A. Averill, and G.R. Edwards, 1968-1972. Scale, 1 inch to 4 miles.

Map 2270 Trout Lakes, Kenora District (53C/13, 53C/14). Geology by L.D. Ayres, and assistants, 1965 and 1967. Scale, 1 inch to ½ mile.

OFR5091 (Part 1) Geochemical Report No.1, Part 1.
Geochemical and Biogeochemical Exploration Research Near Molybdenum-Copper Mineralization at Setting Net Lake, District of Kenora (Patricia Portion), 31p.

OFR5091 (Part 2) Geochemical Report No.1, Part 3.
Gold in Early Precambrian Superior Province Plutonic Rocks: The Relation Between Geochemical Abundance and Concentration to Exploitable Levels, Districts of Kenora, Thunder Bay, Algoma, and Timiskaming (52, 42) by W.J. Wolfe. 16p., 3 figures, 1 table.

OFR5094 Index to 1972 Assessment Work Reports, Parts 1 and 2, by Geoscience Data Centre. Part 1, 104p.; Part 2, 40p.

OFR5095 Geology of the Fredart-Whitemud Lakes Area, District of Kenora (Patricia Portion), by K.G. Fenwick, 131p., 14 figures, 1 table, 6 photos (xerox copies), and 9 maps, scale 1 inch to ½ mile.

MP55 Mineral Exploration Topics, by S.A. Ferguson, E.B. Freeman, E.C. Blunden, D.S. Andrews, O.H. Bjarnason, J.A. McCance, and E.C. Hamilton, 173p.

MP56 Summary of Field Work, 1973, by the Geological Branch. Edited by V.G. Milne, D.F. Hewitt, and W.J. Wolfe, 202p.

Rocks and Minerals Information 1974, 31p.
Prepared by Geosciences Information Office, Geoservices Section, Ontario Division of Mines. Information as of September 1973.

OTHER RECENT PUBLICATIONS RECEIVED IN 1973

Ayres, L.D., Wolfe, W.J., and Averill, S.A.
1973: The Early Precambrian, Setting Net Lake Porphyry Molybdenum Deposit (Abstract); CIM Bull., March 1973, Vol.66, No.731, P 48.

Kirkham, R.V.
1973: Geology of Copper and Molybdenum Deposits in Canada; p.126-127 in Report of Activities, Part A: April to October 1972, Geol. Surv. Canada, Paper 73-1, Part A, 297p.

McAuley, T.
1973: Archaean Marble in the Birch-Uchi Belt; Unpublished B. Sc. Thesis, University of Toronto, Toronto.

Mulligan, R.
1973: Geology of Lithophile Elements; p.127-128 in Report of Activities, Part A: April to October 1972, Geol. Surv. Canada, Paper 73-1, Part A, 297p.

Richardson, K.A.
1973: Airborne Radioactivity Measurements Over the Canadian Shield; p.94-95 in Report of Activities, Part A: April to October 1972, Geol. Surv. Canada, Paper 73-1, Part A, 297p.

Timperley, M.H., Jonasson, I.R., and Allan, R.J.
1973: Sub-Aquatic Organic Gels: A Medium for Geochemical Prospecting in the Southern Canadian Shield; p.58-62 in Report of Activities, Part A: April to October 1972, Geol. Surv. Canada, Paper 73-1, Part A, 297p.

Touberg, Jans F.
1973: Triple Folding in an Archaean Massive Sulphide Deposit, South Bay Mine, Confederation Lake, Northwestern Ontario (Abstract); Unpublished Paper Presented to the Geol. Assoc. Canada-Mineral Assoc. Canada. Meeting in Saskatoon, May 1973.

TABLE 8 Exploration Activity in 1973

Red Lake Resident Geologist's District

Individual or Company	Activity
1. All Canadian Mining and Development Co. Ltd.	Prospecting and trenching in Skinner and Goodall Tps.
2. Amoco Canada Petroleum Co. Ltd.	Geophysical and geological investigations in the Rottenfish River, Setting Net Lake and south of Favourable Lake areas.
3. Amax Exploration, Inc.	Airborne and ground geophysical surveys, and geochemical and geological investigations in the Seagrave Lake, Richardson Lake and Blondin Lake areas.
4. Canadian Nickel Co. Ltd.	Diamond drilling in Bonnell, Keezhik, Misquamaebim, Opikeigen, Springer, Nemeigusabins and Nesting Lake areas.
5. Cochenour Willans Gold Mines Ltd.	Ground electromagnetic and magnetometer surveys, geological investigations and diamond drilling in the Telescope, Longlegged and Sydney Lakes areas; diamond drilling in Ball and Todd Tps. and on the Willmar prospect, Dome Tp.
6. Day, T.L., Low, J.H., Gardiner, M.C. estate, and McBean, J.W.	Detailed magnetometer and geological surveys and diamond drilling on the No. 1 zone of the North Spirit Lake iron prospect.
7. Desmeules, G.	Prospecting in the Favourable Lake area.
8. Dickenson Mines Ltd.	Ground electromagnetic and magnetometer surveys in Balmer Tp.
9. Dome Exploration (Canada) Ltd.	Diamond drilling in Fairlie Tp. (Pokolm et al. option)

	Individual or Company	Activity
10.	Dowaluk, H.	Prospecting in the Bug River area and Heyson Tp.
11.	Xtra Developments Inc.	Diamond drilling in Dome Tp. on ground optioned from St. Fabian Copper Mines Ltd.
12.	Great Plains Development Co. of Canada Ltd.	Diamond drilling in the Ellard, Bonnell, and Aljo Lakes areas.
13.	Hermiston, W.	Prospecting, VLF and magnetometer surveys in Skinner Tp.
14.	Hudson Bay Exploration and Development Co. Ltd.	Diamond drilling in Balmer, Byshe, and Heyson Tps. and in the Karas Lake (Troutlake River) area.
15.	Iso Mines Ltd.	Diamond drilling in the Ashweig River area.
16.	Johnson, E.	Rock trenching in the Vanderbrink (Seeber) Lake area.
17.	Kerr Addison Mines Ltd.	Magnetometer survey and diamond drilling on the Cole Gold Mines prospect, Ball Tp.
18.	Knappett, R.	Rock trenching, Corless Tp., prospecting in Dent Tp.
19.	Kostynuk, M.	Diamond drilling in Baird Tp., rock trenching and prospecting in the Mink Lake area.
20.	Lakelyn Mines Ltd.	Geological investigations and diamond drilling in the Lingman Lake area.
21.	Mid-North Engineering Services Ltd.	Diamond drilling in Byshe Tp. (Hermiston option).
22.	Noranda Exploration Co.Ltd.	Diamond drilling in the South Trout, Favourable and Setting Net Lakes areas.

	Individual or Company	Activity
23.	Parvus Mines Ltd.	Ground geophysics and diamond drilling in Baird Tp.
24.	Peterson, Chas.	Prospecting, rock trenching and diamond drilling in Fairlie Tp.
25.	Phelps Dodge Corp. of Canada Ltd.	Electromagnetic survey north of Sourdough Rapids.
26.	Powley, M.S.	Prospecting and diamond drilling in Heyson Tp.
27.	St. Joseph Explorations Ltd.	Prospecting, ground geophysical surveys, and diamond drilling in Honeywell Tp. and the Swain Lake area.
28.	Selco Mining Corp. Ltd.	Geological investigations in Dent Tp; geological investigations, geophysical surveys, and diamond drilling in Belanger Tp. (Copper-Lode option).
29.	Serem Ltd.	Ground geophysical surveys and diamond drilling in the Muskrat-dam Lake area.
30.	Sherritt Gordon Mines Ltd.	Ground geophysical surveys and diamond drilling in the Swan Lake and Sachigo Lake areas.
31.	South Bay Mines Ltd.	Rock trenching and diamond drilling in Skinner Tp. (option of the Bathurst mine from All Canadian Mining and Exploration Co. Ltd.).
32.	Spirit Lake Mines Ltd.	Diamond drilling in the North Spirit Lake area.
33.	Strilchuk, G.D.	Prospecting in the Favourable Lake and Swan Lake areas.
34.	Stupack, W.	Prospecting in Ball Tp.
35.	Texasgulf, Inc.	Geological investigations in the area west of Northwind Lake.

Individual or Company	Activity
36. Union Miniere Explorations and Mining Corp. Ltd. (UMEX)	Diamond drilling in the Cannon-McVicar Lakes area and in the Pickle Lake area.
37. Williams, Mrs. H.	Geological investigations in the Grace Lake area.

Table 9 Assessment Work Received in 1973

Red Lake Resident Geologist's District

Abbreviations:

Air	- Airborne	IP	- Induced polarization survey
BM	- Base Metals	HLEM	- Horizontal loop electromagnetic survey
cs	- core samples	Mag	- Magnetometer survey
DD(6) 410'	- 6 diamond drill holes totalling 410'	Tr	- Trenching
EM	- Electromagnetic survey	VLFEM	-Very low frequency electromagnetic survey
GL	- Geological survey		

AREA	OWNERSHIP	TYPE OF DATA, YEAR PERFORMED	METALS SOUGHT	NTS:	FILE NO:
Baird Tp.	Kostynuk, M.	DD(1) 105'/1973	Ni,Au	52N/4	Baird Tp.
	Parvus Mines Ltd.	DD(4) 1860'/1972 VLFEM/1973	BM,Au	52N/4	Baird Tp.
	Tetlock, I.	Tr/1972		52N/4	Baird Tp.
Ball Tp.	Cochenour Willans Gold Mines Ltd.	DD(20) 2893'/1973 HLEM/1972	Cu,Zn,Ag	52M/1	Ball Tp.
Balmer Tp.	Dickenson Mines Ltd.	VLFEM, Mag/1973	BM,Au	52N/4	Balmer Tp.
Belanger Tp.	Copper-Lode Mines Ltd. (Selco option)	DD(2) 568'/1969 Air EM, Air Mag/1972 DD(2) 730'/1972 DD(6) 2200'/1973	Cu,Zn,Ag	52K/15	Belanger Tp.
	Rossmark Mines Ltd.	Air EM, Air Mag/1972	BM	52K/15	Belanger Tp.
	Selco Mining Corp. Ltd.	DD(1) 407'/1973	BM	52K/15	Belanger Tp.
Bonnell Lake	Canadian Nickel Co. Ltd.	DD(7) 1055'/1973	BM	53K/9	53K/NE
	Great Plains Development Co. of Canada Ltd.	VLFEM, Mag/1972 DD(4) 1440'/1973	BM	53K/9	53K/NE
Bysha Tp.	Hermiston, W. (Dickenson option)	DD(8) 2695'/1973	Zn,Cu	52N/4	Bysha Tp.
Casummit Lake	Kostynuk, M.	Tr/1973	Au	52N/8	52N/SE
Collishaw Lake	Union Miniere Explorations and Mining Corp. Ltd.	DD(2) 310'/1971 DD(8) 2396'/1972 DD(5) 1309'/1973	BM	52P/10	52P/NW
Dormier	Great Plains Development Co. of Canada Ltd.	Mag/1972	BM	53J/1	53J/SE
Dixie Lake	Caravelle Mines Ltd.	GL,VLFEM,Mag/1972	BM	52K/13	52K/NW
	Wagner, R.	Mag/1972			
Dome Tp.	Cochenour Willans Gold Mines Ltd.	DD(2) 2850'/1972	Au	52N/4	Dome Tp.
Ellard and Aljo Lakes	Great Plains Development Co. of Canada Ltd.	DD(4) 1821'/1973 Mag/1972	BM	53J/12,13	53J/NW
Fairlie Tp.	Peterson, C.W.	DD(6) 2128'/1972 Tr, stripping/1972 VLFEM/1972 cs/1973	BM,Au	52N/4	Fairlie Tp.
First Loon Lake	Union Miniere Explorations and Mining Corp. Ltd.	DD(1) 358'/1972 DD(2) 537'/1973	BM	52O/9 52P/12	52O/NE 52P/NW
Fredert Lake	Rossmark Mines Ltd.	cs/1973	BM	52K/14	52K/NW
Frood Lake	Frood Lake Mining Co. Ltd.	EM,Mag/1972	BM	52O	52O/NE
Garneau Lake	Sherritt Gordon Mines Ltd.	DD(3) 825'/1973	BM	53J/3,6	53J/SW
Gerow Lake	Sherritt Gordon Mines Ltd.	DD(4) 1361'/1973	BM	53G/13	53G/NW
Goose River	Canadian Nickel Co. Ltd.	DD(3) 422'/1972	BM	53I/4	53I/SW
Honeywell Tp.	St. Joseph Explorations Ltd.	DD(3) 891'/1973	BM,Au	52N/7	Honeywell Tp.
Kaphichi Lake	Union Miniere Explorations and Mining Corp. Ltd.	DD(12) 7179'/1970 DD(29) 18,041'/1971 DD(15) 7,896'/1972	BM	52O/9	52O/NE
Karas Lake	Hudson Bay Exploration and Development Co. Ltd.	EM/1972	BM	52K/11	52K/NE

AREA	OWNERSHIP	TYPE OF DATA, YEAR PERFORMED	METALS SOUGHT	NTS:	FILE NO:
Kechenkagun Lake	Great Plains Development Co. of Canada Ltd.	EM,Mag,GL/1971 DD(9) 1111'/1972	Ni	53B/2	53B/SE
Keeshik Lake	Cominco Ltd.	EM,Mag/1972	Ni	52P/15	52P/NW
Kivimen Lake	Canadian Nickel Co. Ltd.	DD(1) 116'/1972	Ni	53G/13	53G/NW
Knife Lake	Canadian Nickel Co. Ltd.	DD(1) 150'/1972	Ni	53G/14	53G/NW
McCullagh Tp.	Union Miniere Explorations and Mining Corp. Ltd.	DD(1) 513'/1971	Ni	52P/12	McCullagh Tp.
McDonough Tp.	Cochenour Willans Gold Mines Ltd.	EM, DD(4) 787'/1972	Ni	52M/4	McDonough Tp.
McVicar-Cannon Lakes	Dresden Mines Ltd.	VLFEM,Mag/1972	Ni	52O/11	52O/NW
	Hoey, F.	Tr/1972		52O/11	52O/NW
	Union Miniere Explorations and Mining Corp. Ltd.	DD(12) 3054'/1973	Ni	52O/11	52O/NW
Michikanopik Lake	Canadian Nickel Co. Ltd.	DD(1)150'/1972	Ni	53A/8	53A/SW
Minimieka Lake	Canadian Nickel Co. Ltd.	DD(2) 87'/1972	Ni	52P/10	52P/NW
Misikeyask Lake	Canadian Nickel Co. Ltd.	DD(1) 157'/1972	Ni	53G/16	53G/NE
Misquamesbin Lake	Canadian Nickel Co. Ltd.	DD(1) 149'/1971 DD(6) 790'/1972 DD(3) 626'/1973	Ni	53G/6	53G/SW
Mitchell Tp.	Selco Mining Corp. Ltd.	DD(3) 1400'/1971	Ni	52M/2	Mitchell Tp.
Muskratdam Lake	Canadian Nickel Co. Ltd.	DD(1) 775'/1972	Ni	53F/8	53F/SE
	Soren Ltd.	DD(6) 1874'/1971 DD(31) 10,098'/1972 DD(35) 10,889'/1973 EM,Mag/1973	Ni	53F/8	53F/SE
	Texasgulf, Inc.	DD(10) 3109'/1971	Ni	53G/5	53G/SW
Mapaybin Lake	Soren Ltd.	DD(3) 1,000'/1971 DD(2) 270'/1972	Ni	53F/1	53F/SE
Nemeigusabins Lake	Canadian Nickel Co. Ltd.	DD(2) 875'/1970	Ni	53H/12	53H/NW
Nesting Lake	Canadian Nickel Co. Ltd.	DD(1) 220'/1973	Ni	52P/10	52P/NE
North of Big Trout Lake	Great Plains Development Co. of Canada Ltd.	Mag/1972	Ni	53J/5	53J/SW
North of Wapamisk Creek	Great Plains Development Co. of Canada Ltd.	EM/1971	Ni	53B/7	53B/SE
Peesgwon Lake	Canadian Nickel Co. Ltd.	DD(1) 442'/1972	Ni	53A/7	53A/SE
Pomeford Lake	Union Miniere Explorations and Mining Corp. Ltd.	DD(6) 8410'/1971-72	Ni	52O/9	52O/NE
Portage Lake	Canadian Nickel Co. Ltd.	DD(3) 429'/1972	Ni	53G/16	53G/NE
Reserve Lake	Cominco Ltd.	Air EM, Air Mag/1971	Ni	42M/12	42M/NW
Rottenfish River	Canadian Nickel Co. Ltd.	DD(2) 364'/1972	Ni	53F/8	53F/SE
Rich-Opikeigan Lakes	Canadian Nickel Co. Ltd.	DD(3) 512'/1972 DD(2) 644'/1973	Ni	52P/9	52P/NE
Sachigo River	Great Plains Development Co. of Canada Ltd.	Mag/1972	Ni	53J/5	53J/SW
Setting Net Lake	Ecstall Mining Ltd.	Mag, IP/1972	Cu	53C/13	53C/NW
	Noranda Exploration Co. Ltd.	EM, Mag/1972	Ni	53C/13	53C/NW
Severn River	Canadian Nickel Co. Ltd.	DD(2) 266'/1972	Ni	53G/6	53G/SW
Shabumeni Lake	St. Joseph Explorations Ltd.	DD(4) 2312'/1973	Cu,Au	52M/7	52M/SE
Skinner Tp.	All Canadian Mining and Exploration Co. Ltd.	Rock Tr/1972	Au	53H/2	Skinner Tp.

AREA	OWNERSHIP	TYPE OF DATA, YEAR PERFORMED	METALS SOUGHT	NTS:	FILE NO:
Sourdough Rapids	Iso Mines Ltd.	DD(5) 1385'/1973 GL/1973	BM	43E/13	43E/NW
	Phelps Dodge Corp. of Canada Ltd.	EM/1973	BM	43E/13	43E/NW
	Selco Mining Corp. Ltd.	GL,Mag/1972	Cu	43E/13	43E/NW
South of Nance Lake	Union Miniere Explorations and Mining Corp. Ltd.	DD(1) 337'/1973	BM	52O/7	52O/SE
Springer-Owen Lakes	Canadian Nickel Co. Ltd.	DD(9) 3905'/1972 DD(1) 495'/1973	BM	43D/5	43D/SW
Stables Lake	Great Plains Development Co. of Canada Ltd.	Mag/1972	BM	53J/6	53J/SW
Stull Lake	Seren Ltd.	DD(17) 6214'/1971	BM	53K/7	53K/SE
Sydney Lake	Cochenour Willans Gold Mines Ltd.	DD(4) 3703'/1973	Zn,Cu,Ag	52L/9	52L/NE
Tarp Lake	Union Miniere Explorations and Mining Corp. Ltd.	DD(1) 402'/1973	BM	52O/9	52O/NW
Vanderbrink Lake	Johnson, E.	Rock Tr/1973		53F/14	53F/NW
Wampanish Creek	Great Plains Development Co. of Canada Ltd.	DD(11) 5011'/1971	BM	53B/1	53B/SE
Winisk River	Canex Placer Ltd.	Geophysical survey report/1973	BM	53P/1	53P/SE
	Canadian Nickel Co. Ltd.	DD(1) 120'/1972	BM	53A/15	53A/NE

Table 10 Other Information Received in 1973

Red Lake Resident Geologist's District

AREA	OWNERSHIP	TYPE OF DATA, YEAR PERFORMED	METALS SOUGHT	NTS:	FILE NO:
Balmer Tp.	Dickenson Mines Ltd.	VLFEM,Mag and SP surveys/1972		52N/4	Balmer Tp.
Birch Lake	Koezur, K.	Prospector's Report		52N	52N/SE
Dent Tp.	South Bay Mine	EM,Mag/1970 Exploration Report DD(4) 1514'/1970		52N/2	Dent Tp.
Swan Lake	Sherritt Gordon Mines Ltd.	EM,Mag/1973		53J	53J/SW

Table 11 Data Received from Ontario Securities Commission in 1973

Red Lake Resident Geologist's District

AREA	OWNERSHIP	TYPE OF DATA, YEAR PERFORMED	METALS SOUGHT	NTS:	FILE NO:
Baird, Heyson, Fairlie Tps.	Parvus Mines Ltd.	Prospectus, 1973		52N/4	Baird Tp.
Balmer Tp.	Redcon Gold Mines Ltd.	Prospectus, 1973		52N/4	Balmer Tp.
Dome Tp.	Xtra Developments Inc.	Prospectus and Property Report,1973		52N/4	Dome Tp.
McVicar Lake	Card Lake Copper Mines Ltd.	Prospectus, 1972		52O/11	52O/NW
Lingman Lake	Lakelyn Mines Ltd.	Prospectus, 1973		53F/15	53F/NE

SAULT STE. MARIE DISTRICT

By

R.J. Rupert

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12. Assessment Work and Other Information Received in 1973, Sault Ste. Marie Resident Geologist's District	94

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THUNDER BAY
COCHRANE
ALGOMA
SUDBURY
LAKE SUPERIOR
OFR 5091 Part 1
GSC 72-10
GR 112
P.914
OFR 5092
North Channel
MANITOULIN
49°
48°
47°
46°
86°
85°
84°
83°
Figure 10
SAULT STE. MARIE
RESIDENT GEOLOGIST'S DISTRICT
EXPLANATION
New maps and(or) reports (with numbers)
GSC - Geological Survey of Canada
OFR - Open File Report
GR - Geological Report
P - Preliminary map
Boundary of Resident Geologist's District
Scale of Miles
0 10 20 30 40
ODM, MP 57

INDEX TO FIGURE 10

PROPERTY LOCALITIES

● Producing Mines

7 The Algoma Steel Corp. Ltd., The George W. MacLeod Mine.
8 Denison Mines Ltd., Denison Mine.
9 Rio Algom Mines Ltd., New Quirke Mine.
10 Tribag Mining Co. Ltd., Tribag Mine.

◑ Developing Mines

3 Pursides Gold Mines Ltd., Surluga Mine, Tp. 29, R.23.*
6 McKee Copper Inc., Otter Tp.

▲ Prospects Mentioned in Text

1 Raylloyd Mines and Explorations Ltd., Tp. 162*
2 Falconbridge Nickel Mines Ltd. - Pt. Isacor
4 Ego Mines Ltd. - Tp. 28, R.26.*
5 Tribag Mining Co. Ltd., VanKoughnet Tp.
11 Teck Corp. Ltd. Prospect, Tp. U.*
12 Artistan Mining and Milling Ltd., Gaudette Tp.

New Maps and(or) Reports

— — (A) New Sault Ste. Marie Resident Geologist's Office Indexes.
——— (B) Nameigos-Simpson Area. P.811, 812, 813, 911, 912 and 913.
——— (C) Wakomata Lake Area, East Half. P.914.
▒▒▒ (D) Diamond Drilling in Huronian Supergroup OFR 5093.
– – – – (E) Proterozoic Basalts, Mamainse Point, GSC Paper 72-10.
. . . . . (F) McMahon and Morin Townships GR112.
▒▒▒ (G) OFR 5091 (Part 1)

*All lettered and numbered townships were renamed March 13, 1974.

Tp. 29, R.23 now McMurray Township
Tp. 162 now Jogues Township
Tp. 28, R.26 now Abotossaway Township
Tp. U now Viel Township

SAULT STE. MARIE DISTRICT

By

R.J. Rupert[1]

INTRODUCTION

As a result of the reorganization of the Ministry of Natural Resources in 1973, the Resident Geologist in Sault Ste. Marie has been replaced by P.E. Giblin, Regional Geologist for the Northeastern Region. The writer's duties with the Ministry terminated at the end of 1973.

The office is now staffed by P.E. Giblin, E.J. Leahy, Geological Assistant and G. Nivins, Secretary.

As noted in the introduction to this publication, the boundaries of the Resident Geologist's districts will be changed in 1974.

RESIDENT AND REGIONAL GEOLOGISTS' ACTIVITIES

Using funds made available under the Ontario Seasonal Employment Program, a revision and upgrading of the data filing system in this office was begun in 1973. New indexes for 49 townships (Map Reference A, Figure 10) have been prepared and are being maintained. Each township index contains about twelve 8½ x 11 loose-leaf pages including an index plan showing the actual location or areal extent of any work reported in the Resident Geologist's files; a description of that work; an airphoto index plan; topographic, aeromagnetic, and geological maps; a township location plan and lists of all available published or unpublished government or miscellaneous publications which deal with the geology or mineral deposits of the area. These indexes are as complete and accurate as experienced geologists located in Sault Ste. Marie can make them. They can be reproduced by standard photocopy methods.

Reconnaissance geological mapping was conducted in an area between Gong and Cowie Lakes to investigate apparent discrepancies between aeromagnetic maps and geological compilation maps. It was found that the Cowie Lake Iron Formation extends for at least 20 miles into granitized gneissic terrain, but that these granitized iron formations are unlikely to be of economic value under present or foreseeable conditions.

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[1]Formerly Resident Geologist, Ontario Ministry of Natural Resources, 370 Lake Street, Sault Ste. Marie. Manuscript approved for publication by the Chief, Geoservices Section, Geological Branch, Ontario Division of Mines, 4 March 1974.

P.E. Giblin and the writer, assisted by a committee of local geologists, have been involved in the organization of the 20th Annual Institute on Lake Superior Geology, to be convened in Sault Ste. Marie on May 2 to 5, 1974. In connection with this meeting, P.E. Giblin and the writer have prepared geological field trips in the Batchawana and Michipicoten areas respectively.

The regional and resident geologists have prepared over 10 reports for land use planning in the Sault Ste. Marie District during 1973. These reports have involved transportation route plans, zoning plans, general land use plans, and recreational land use plans. They have been prepared for this Ministry, or as part of this Ministry's contribution to planning projects by other agencies at municipal, regional, provincial, and federal levels.

As a result of these contributions, it is expected that the resulting plans will make realistic and adequate provisions for discovery, development, and production of the province's mineral and energy resources, and that the planners will be able to acquire a better perspective of the nature of non-renewable resources with respect to renewable and recreational resource utilization.

A paper was prepared and presented at the 1973 convention of the Prospectors and Developers Association in Toronto, outlining exploration targets of current interest in Ontario.

At the request of local educational groups, the writer and E.J. Leahy have prepared and conducted field excursions or classroom displays for students and teachers.

GEOLOGICAL BRANCH ACTIVITIES

Geological mapping was conducted in three areas of this district by geologists of the Precambrian Geology Section of the Ontario Division of Mines in 1973. Very brief descriptions of these projects are given below. For more detailed information, the reader is referred to the relevant publication or to ODM Miscellaneous Paper 56, Summary of Field Work, 1973.

G. Siragusa mapped the townships of Nameigos, Doucett, Mosambik, Cudney, Carney, and Simpson, (Map Reference B, Figure 10) south of the area around Kabinakagami Lake which he mapped in 1973. Preliminary Maps P.811, P.812, P.813, P.911, P.912, and P.913, or both areas were issued in 1973.

G. Bennett and P. Srivistava mapped Townships 46 and 47 near Missanabie, located west of the areas mapped by Bennett in 1971 and 1972. This project in the productive Michipicoten "Greenstone" belt has improved the definition of the felsic and mafic volcanic units in the area, and better descriptions of several intrusive units have been achieved. Intrusive rocks within the belt of volcanic rocks include several syenitic plutons, one concentrically zoned gabbroic pluton of apparent Late Proterozoic age, a lamprophyre dike, and an intrusive breccia.

K. Siemiatkowska completed the mapping of Township 182 and adjacent parts of the townships of Gould and Grasett, and Township 188 (Map Reference C, Figure 10). This is the eastern half of the Wakomata Lake Area the western half of which was partially mapped by F.W. Chandler in 1971 (Preliminary Map P.737). It is underlain by strata of the Huronian Supergroup. Preliminary Map P.914 summarizes the results of this work.

Ontario Division of Mines, Open File Report 5093, Diamond Drilling in the Huronian Supergroup, Sault Ste. Marie-Elliot Lake Area, was released for public inspection in 1973. It consists of 2 volumes: the first is a listing of every known drill hole in rocks of Huronian age in each township, and stratigraphic abstracts of about 400 selected drill logs; the second is a series of township maps at a scale of 1 inch to ½ mile, showing hole locations. This report, prepared by E.J. Leahy, may be inspected here or at the Mines Library of the Ontario Ministry of Natural Resources in Toronto. Photocopies are available at the user's expense.

EXPLORATION ACTIVITY

Exploration for uranium in the Sault Ste. Marie and Elliot Lake Districts was almost non-existent during 1972 and the early part of 1973. In the summer of 1973, new staking or restaking of several uranium prospects in Township 162 began, and staking activity intensified in the autumn, stimulated by the Middle East War and the resulting "energy crisis". Large areas between Elliot Lake and Sault Ste. Marie have been restaked, especially in Townships 162, 163, 168, 169, and 156.

Raylloyd Mines and Explorations Limited has acquired rights to an area in Townships 168, 162, and 163 where a deep hole to a projected depth of 5,000 feet or more was started in November 1973 (Locality 1, Figure 10).

Base metal exploration in several scattered localities has continued, but no specific areas can be described as centres of activity.

Falconbridge Nickel Mines Limited conducted diamond drilling on its Point Isacor property (Locality 2, Figure 10), further to its 1972 program. Narrow intersections of pyrite and pyrrhotite with minor amounts of sphalerite and chalcopyrite are reported in diamond drill logs submitted for assessment credit.

Several companies have been conducting exploration programs in the Montreal River and Michipicoten "greenstone" belts, searching for base metals. To date, these programs have been limited to preliminary geophysical work and property acquisition.

Pursides Gold Mines Limited has begun to re-open the Surluga Gold Mine at Wawa (Locality 3, Figure 10) on an exploratory basis in order to re-assess reserves in the light of present gold prices. Ego Mines Limited has also announced a review of the deposit of copper and gold in a porphyry body which it owns in the Goudreau area (Locality 4, Figure 10).

The Renabie Mine and several other former producing gold mines or old prospects in the district have changed ownership or have been re-staked during the past year. However, very little significant new exploration for gold has been undertaken as yet.

Tribag Mining Company Limited continued its exploration program on a copper-lead-silver prospect in Vankoughnet Township (Locality 5, Figure 10). Drilling to date has resulted in location of several zones of stratiform sulphide mineral deposits consisting of chalcopyrite either disseminated in bleached intermediate to mafic Archean volcanic flow tops or as bands and patches in graphitic iron-sulphide-bearing interflow sedimentary rocks. The company has estimated 250,000 tons of 2.35 percent copper reserves in three zones (Canadian Mining Journal, July 1973, p.25). In addition, diamond drilling several hundred feet to the north has located a narrow high-grade vein of argentiferous galena.

The high prevailing price of copper has stimulated interest in copper prospects north of Lake Huron, but the only activity during the year has been trenching and re-examination of a few prospects and limited diamond drilling of at least two others. One prospect in the area owned by McKee Copper Incorporated (Locality 6, Figure 10) has produced about one carload of hand-cobbed direct smelting ore, and is currently being developed on an exploratory basis. The latter prospect and one other copper prospect in this area are described in another section of this report.

PRODUCING MINING OPERATIONS

Four mines in the district have been in steady production during 1973, and there have been no major changes in their operations. The McKee Copper Incorporated property, a small high-grade copper deposit in Otter Township, has been worked to produce a single shipment of hand-cobbed direct smelting copper ore. A mining and milling operation begun late in 1972 at the Copper Prince and Cannon Mines in Township 168 by North Shore Copper Limited did not resume operations in 1973 after the Christmas-New Year break.

The largest mine in the district is the G.W. MacLeod Mine of The Algoma Steel Corporation Limited at Wawa, which continues to produce siderite ore, from the Helen orebody, for roasting to iron sinter at its Wawa plant. This mine is now the only operating iron mine in the area. At a production rate of 2.75 million tons of ore per year, it is one of Canada's largest underground operations.

At Elliot Lake, Denison Mines Limited and Rio Algom Mines Limited have been producing uranium at less than full capacity throughout 1973. Most of the Denison Mines Limited production has been stockpiled. Recent announcements of new sales contracts and increasing demand for uranium are expected, by the company, to result in accelerated production at the operations of both companies.

Denison Mines Limited (Locality 8, Figure 10) has acquired the assets of the former producer, Stanrock Uranium Mines Limited, by merger of the two companies. Denison Mines Limited has also increased its property holdings southwest of its main producing zone by staking. Several staked areas southwest of the Denison Mine have been surveyed, apparently in anticipation of leasing.

Rio Algom Mines Limited, restricted by its status as a non-Canadian company, is not conducting any outside exploration. At present, all production is from the New Quirke Mine, and is treated at the Quirke mill. The Quirke Mine is not in production, and all of the Rio Algom Mines Limited group of mines on the south limb of the Quirke Lake Syncline are closed and flooded (the Nordic, Milliken, Stanleigh, and Lacnor). Many of the mills in the area have been dismantled during the past decade.

The Tribag Mining Company Limited at Batchawana (Locality 10, Figure 10) continued production in 1973, although shortages of developed ore and skilled miners have resulted in lower production rates. In June 1973, when Teck Corporation Limited relinquished control of the company, known ore reserves were reported to be less than one year's supply. Since then the company has neither announced any proposals for termination of the operation, nor for extended production from recalculated or newly discovered reserves.

Operations at Copper Prince Mines Limited and the nearby Cannon Mines Limited mill in Township 168 were suspended at the beginning of 1973, after shipping a small quantity of copper concentrates in 1972.

RECOMMENDATIONS TO PROSPECTORS

The writer and P.E. Giblin presented a paper at the 1973 Prospectors and Developers Association convention outlining several suggestions for prospecting in the Southern Structural Province of the Canadian Shield. The reader is referred to this paper for details, particularly as they relate to copper and uranium which are now enjoying increased prices and demand. Prospectors were advised to search for magmatic ores of copper or nickel sulphides in two environments: undiscovered new or extended offset dikes in the Sudbury area and in intrusive plutons of Late Precambrian (Middle Proterozoic) age around Lake Superior. Attention was also drawn to the presence of cupriferous skarn zones in the Penokean fold belt north of Lake Huron, and an hypothesis for the origin of uranium in the Elliot Lake area was presented.

Uranium explorers may find the concepts on the origin of uranium deposits in the Elliot Lake area useful as a guide to spotting drill holes in deep exploration programs.

The increased price of gold makes it an attractive target for prospectors who are advised to seek out old gold prospects in the area, with special attention to those which also will benefit from the low costs of modern machine mining methods as well as from the higher price of gold. At the present time, wide mineralized zones in shear zones, sulphide iron formations, or silicified porphyry bodies are much more attractive mining propositions than the narrow quartz veins which were not economically attractive in the 1930's and 1940's. Prospectors are advised to concentrate their efforts on deposits which are likely to have average widths in excess of 15 feet.

PROPERTY EXAMINATIONS

Teck Corporation Limited Copper Prospect - Township U (Locality 11, Figure 10)

A copper prospect held by Teck Corporation Limited in the northwestern part of Township U was examined on July 31, 1973.

A new logging road along the south side of the creek flowing out of West Ritchie Lake exposed frequent boulders of quartz and carbonate vein material heavily mineralized by chalcopyrite. In places, the glacial till containing the boulders is cemented by a 1- to 3-inch layer of malachite. The road-cut and subsequent trenching on the slope above for several hundred feet to the southeast exposed mineralization in till for a length of over 1,000 feet along the valley. One badly broken and weathered outcrop of fine-grained altered diabase in the road-cut is well mineralized in fractures with chalcopyrite. Specimens from this outcrop are not radioactive.

The extensive till zone, with a high proportion of mineralized vein material on the southeastern side of the valley, is indicative of the possible presence of a primary bedrock source underneath the till or in the valley to the north.

It is noted that the northwest-trending diabase dikes at this locality (ODM Map P.468, Township U, Woods 1968) are the same dikes as those closely associated with copper and uranium mineralization in the Little Sister Lake area, 7 miles to the southeast.

R.J. Graham of Geophysical Engineering and Surveys Limited advised the writer that his company has completed IP surveys and diamond drilling on the property subsequent to the writer's examination. The results of this work are not yet available.

McKee Copper Incorporated - Otter Township (Locality 6, Figure 10)

This copper prospect is reported to have been discovered in 1969 or 1970. It is reported to have been examined by several companies since then, including Selco Mining Corporation Limited. Rio Tinto Canadian

Exploration Limited has completed geophysical surveys on the property, and other organizations have completed several diamond drill holes. Records of the drilling are unavailable.

The prospect is located on mining claim no. 282633 in the east-central part of Otter Township. It is in a valley between two ridges capped by outliers of Gowganda Formation of the Huronian Supergroup. The prospect is a quartz-carbonate vein cutting a diabase dike which, in turn, intruded massive Archean granite (ODM Preliminary Map P.737, Chandler 1972). The age of the diabase dike is uncertain, but on the basis of regional associations, it is probably post-Huronian.

The diabase dike has a strike direction of about 120° and the strike of the vein is between 070° and 110°, averaging about 080°. Both the dike and the vein dip steeply (80° $\pm$ 5°) to the north. The dike is displaced about 15 feet in a right-hand sense along the vein.

Where the vein is exposed in the diabase dike, it is a sinuous body from 2 feet to 10 feet wide composed of about 50 percent quartz with roughly equal quantities of chalcopyrite and siderite or ankerite. Siderite and quartz show some banding, and the quartz is generally younger than the carbonate. Chalcopyrite is closely associated with quartz, but is also present in the carbonate sections, and traces of specular hematite are present. Four chip samples taken across this 165-foot section of the vein by the writer averaged 8.4 percent copper across 6.0 feet.

The ends of the vein exposed beyond the 165-foot section in the diabase dike are predominantly composed of siderite or ankerite with only minor amounts of quartz and sparse chalcopyrite. Specular hematite is the dominant metallic mineral.

The diabase dike is a fine- to medium-grained ophitic rock. It is unusual in that it contains about 5 percent carbonate as fine grains which are evident as rusty spots on the weathered edge of rock specimens. Traces of fine yellow metallic minerals, including some chalcopyrite, are present in the diabase. A zone near the centre of the dike includes clusters of rounded and partially assimilated granite fragments up to 3 inches in diameter.

Artistan Mining and Milling Company Limited - Gaudette Township (Locality 12, Figure 10)

During 1972, a molybdenum-copper-uranium prospect near the east boundary of Gaudette Township on the Whitman Dam road was re-activated by Artistan Mining and Milling Company Limited. It is an old prospect on land leased from the Algoma Central Railway.

During the Second World War, minor amounts of hand-cobbed molybdenum ore were extracted from an open-cut as an emergency war measure, and minor diamond drilling was done at that time to determine whether further development was warranted. In 1948, Alur Mines Limited re-examined the propect for uranium by trenching and diamond drilling. The recent work by Artistan Mining and Milling Company Limited involved installation of a very small portable crushing plant and tables which were used to treat additional material. The plant failed to produce suitable concentrates and has been removed.

The prospect is in paragneiss extending eastward from the Archean Goulais River metavolcanic and metasedimentary belt. At the prospect, the paragneiss has a gentle dip to the northeast of less than 20 degrees and is slightly folded into an open anticline plunging in the same direction. A diabase dike with a northwest strike is present on the east side of the prospect. Three distinct, but apparently related, types of mineralization are present.

A quartz lens up to 20 feet thick and several hundred feet long is conformable with the gneiss. The coarse white quartz contains some feldspar crystals and patches of molybdenite, pyrite, and chalcopyrite. An unknown quantity of this vein has been mined by open-cut methods, so that it is now exposed only in a cut facing southwest, and capped by gneiss.

Surrounding the vein, the gneiss on both sides is mineralized by up to 20 percent pyrite for a thickness of at least 15 feet. Traces of sooty pitchblende were located by the writer in vugs in this material, but most of it contains only barren pyrite. The writer considers this zone to be greisen. Analyses and mineralogical examinations for minerals containing tin or tungsten yielded negative results.

A vertical radioactive shear zone up to 4 feet wide and at least 160 feet long cuts across the northwest end of the quartz vein, and has a northeasterly strike. It consists of sheared and carbonatized diabase with some hematite stain and traces of a black radioactive mineral, presumed to be pitchblende. Several trenches and a few diamond drill holes had been completed by Alur Mines Limited to test this zone in the 1940's, but no assays are available.

Gong Lake Iron Formation - Township 22, R. 12 and Townships 5H, 5G, and 6G

A major arcuate linear aeromagnetic anomaly in an area mapped as granite (ODM Geological Compilation Series, Map 2108) was investigated by the writer in July 1973. Previous spot checks of this anomaly reported by The Algoma Steel Corporation Limited indicated the presence of iron formation in granite gneiss.

Field examination revealed that the rocks are paragneiss in various stages of granitization. Siliceous iron formations, apparently too refractory to melt, are the only units which can still be readily recognized as metasediments, and even these units are discontinuous and intruded by granite dikes which make up at least 40 percent of examined exposures. At the southern end of Lac Cherie in Township 22, R. 12, the iron formation is enclosed between a thin ¼-mile wide belt of mafic metavolcanics to the north, and metasediments to the south. Epidote, amphibole, and chlorite are present in these rocks. This is clearly the eastern extension of the Cowie Lake iron formation in the Montreal River "greenstone" belt.

Exposures examined in Township 5H and eastward consist of siliceous iron formation and some interbedded metasedimentary gneiss containing garnet, pyroxene, and amphibole as well as quartz and feldspar. Forty percent of all of these exposures consist of closely spaced dikes of granite. The surrounding gneiss for about 1 mile to the north and 2 or 3 miles south is mainly granitic in character with large blocks of amphibolite in varying degrees of assimilation. Generally, the gneiss south of the iron formation displays better banding and appears to be granitized metasediments. The intruding granitic rocks show all gradations from clearly intrusive granite and feldspar porphyry dikes to porphyroblastic amphibolite gneiss with remarkably similar phenocrysts or porphyroblasts of feldspars.

Because of the degree of injection and dilution by granite dikes, none of these iron formation exposures are likely to be considered as iron ores. Although total widths of medium- to coarse-grained silica-magnetite iron formation are as much as 200 feet, the average grade is estimated to be less than 10 percent iron. The extent of the iron formation is indicated on Figure 10.

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Table 12 Assessment Work and Other Information Received in 1973

Sault Ste. Marie Resident Geologist's District

Abbreviations

A - Airborne
DDH - Diamond Drill Hole
EM - Electromaghetic Survey (audio frequency)
KCEM - Kilocycle EM Survey
SP - Self Potential
GC - Geochemical Survey
GEOL - Geological Survey
MAG - Magnetometer Survey
AC - Work for Assessment Credit

Township or Area	Ownership	Type of Data	Commodity Sought	Year Work Performed	File No.
Bridgland	Paynter Property	2 DDH (521') AC	Cu	1970	SSM-1245
Cosens	M. Little Ltd.	1 DDH (1010') AC	Mo, Cu	1972-73	SSM-1656
Esten	Esten Explorations Inc.	Prospectus, GEOL Report	Cu	1973	SSM-1680
Galbraith	Paynter, R.	1 DDH (298') AC	Cu	1973	SSM-1471
	Power Explorations & Holdings Ltd.	Prospectus, GEOL Report	Cu	1973	SSM-1692
Gaudette	Asarco Expl'n. Co. of Canada Ltd.	AEM, AMAG (33 sq. mi.) AC	Base Metals	1973	SSM-1697
	Dengas Explorations & Holdings Ltd.	GEOL, MAG, 6 claims	Cu, Mo	1972	SSM-1657
Gladstone	Allard, J. E.	Sample Plans-surface and underground AC	Cu	1972	SSM-1660
Haughton	Beaudin, R.	Stripping & Trenching AC	Cu	1972	SSM-1669
Hawkins	Magi Gold Mines Ltd.	Prospectus	Au	1972	SSM-1666
Kehoe	Gulf Minerals Canada Ltd.	Core specimens (DDH 69-2)	U	1972	SSM-1626
Kirkwood	Anthony, H. W.	Stripping & Trenching AC	Cu	1972	SSM-1191
Leeson	Campbell, R.	Stripping & Trenching AC	Au	1972	SSM-1679
Otter	McKee, R.	GEOL Report, Assays, MAG, EM	Cu	1968	SSM-1309
Patton	Pellerin, U.	Trenching AC	Cu	1973	SSM-1695
Rose	Paynter, R.	1 DDH (135') AC	Cu	1972	SSM-1495
Ryan	Sinclair, D. B.	Beneficiation Study AC	Fe	1972	SSM-1618
Scarfe	McIntyre Porcupine Mines Ltd.	GEOL, EM (32 claims) AC	Cu	1961	SSM-597 ODM 63.117
Templeton	Cedam Ltd.	1 DDH (173') AC	Diamonds	1972	SSM-1681
VanKoughnet	Doughty, W.	GEOL, MAG, KCEM, SP, GC, Trenching, Report, Assays	Cu	1972	SSM-1670
VanKoughnet Deroche	Feldstein, H. E.	2 DDH (501') Core specimens AC	Cu, Zn	1973	SSM-1124
Walls	Metalhawk Mining Ltd.	Prospectus		1972	SSM-1662
Whitman	Crestland Mines Ltd.	10 DDH (2,064') AC	Cu	1968	SSM-1676
1F	Barcis, A.	Trenching AC	Cu	1973	SSM-1131
	MacDougall, D.	Trenching AC	Cu	1973	SSM-1619
3H	Warren, W. J.	Trenching AC		1973	SSM-780
22, Range 10	Asarco Exploration Co. of Canada Ltd.	AEM, AMAG (30 sq. mi.) AC	Base Metals	1973	SSM-1697 ODM 2.1339
24, Range 13	Algoma Central Railway	AEM, AMAG, GC, GEOL AC	Base Metals	1956	SSM-1684 ODM 63.835
24, Range 14	Algoma Central Railway	AEM, AMAG, GC, GEOL AC	Base Metals	1956	SSM-1684 ODM 63.835
28, Range 24	Pango Gold Mines Ltd.	MAG (15 claims)	Au	1970	SSM-1693
28, 29, 30, Range 24 28, Range 25	Goetz, A.	Various GEOL Maps and Report	Fe	1907-31	SSM-1688
29, Range 14	MacGregor, R. A.	MAG (2 claims) AC		1972	SSM-1683 ODM 2.1131
29, Range 23	Hillside Mine Ltd.	Underground GEOL Map	Au	1973	SSM-1691
	Purtides Gold Mines Ltd.	Prospectus	Au	1973	SSM-1686
	Van Sickle, L. A.	Stripping AC	Au	1972	SSM-1129
30, Range 19	Coutu Gold Mines Ltd.	Reports, plans, sections, assays, DDH logs	Au	1958	SSM-321
43	Davies, J. P.	Trenching AC	Cu	1973	SSM-1696
49	Simpson, W. C.	2 DDH (250') AC		1972	SSM-1661
149	Denison Mines Ltd.	1 DDH (803') AC	U	1973	SSM-1678
162	Raylloyd Mines & Explorations Ltd.	Prospectus, GEOL Report	U	1973	SSM-1356
168	Copper Prince Mines Ltd.	Prospectus	Cu	1972	SSM-451
175	Master Metals Corp. (Mining) Ltd.	6 DDH (716') AC	Cu	1971	SSM-1602
Point Isacor	Falconbridge Nickel Mines Ltd.	33 DDH (9,462') AC	Base Metals	1972	SSM-1568
Mishibishu Lake	Asarco Expl'n. Co. of Canada Ltd.	4 DDH (983')	Cu,Zn,Au	1972	SSM-1675

SOUTHERN ONTARIO REGIONS

By

Shirley J. Gibson

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Southern Ontario Regions

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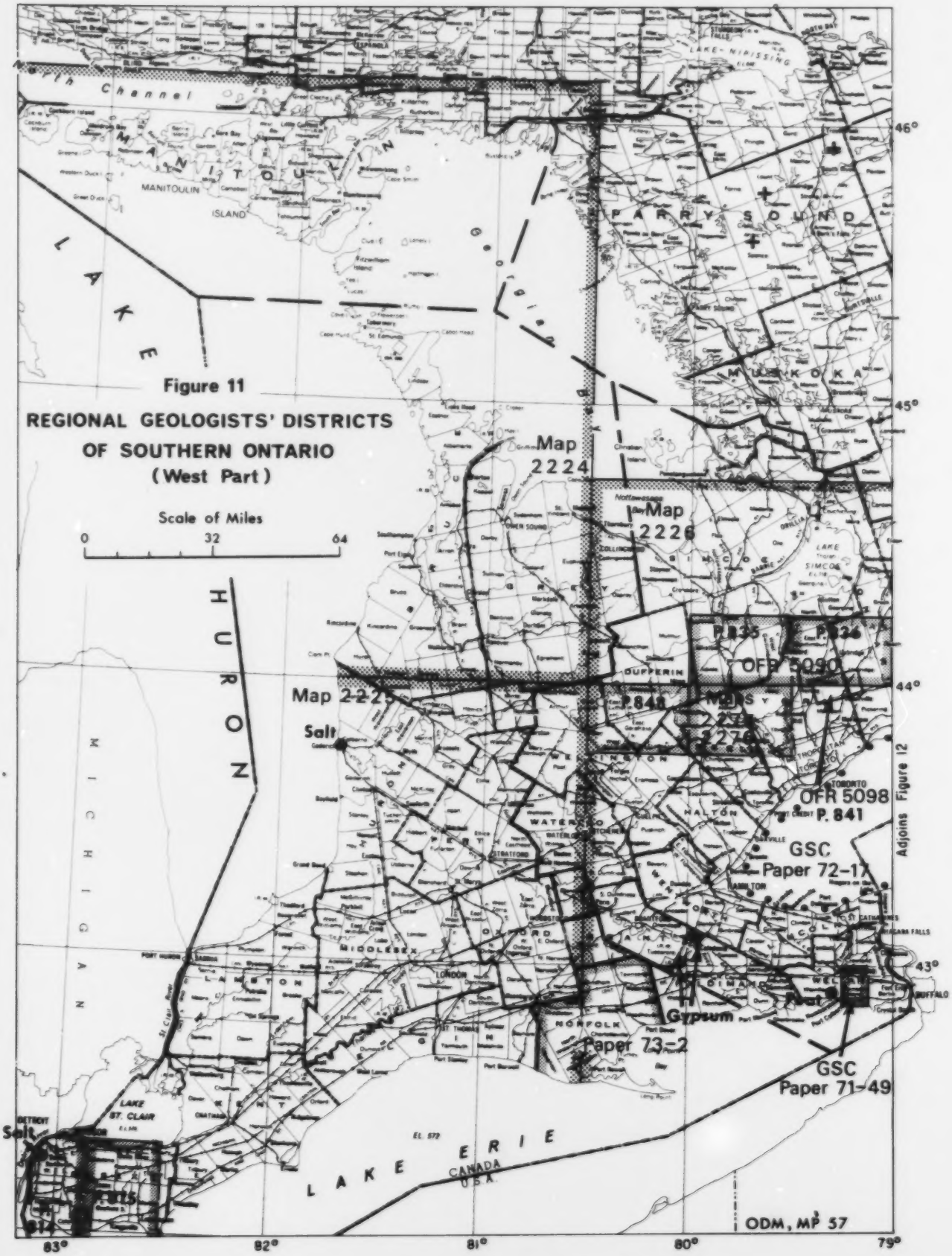
Figure 11
REGIONAL GEOLOGISTS' DISTRICTS
OF SOUTHERN ONTARIO
(West Part)
Scale of Miles
0
32
64
Map 2224
Map 2226
Map 2225
Salt
Gypsum
Paper 73-2
GSC Paper 72-17
GSC Paper 71-49
OFR 5090
OFR 5098
P. 841
P. 848
Adjoins Figure 12
ODM, MP 57
LAKE ERIE
LAKE HURON
LAKE MICHIGAN
LAKE ST. CLAIR
CANADA
U.S.A.
MANITOULIN ISLAND
PARRY SOUND
MUSKOKA
HALTON
NORFOLK
MIDDLESEX
WATERLOO
DUFFERIN
TORONTO
BUFFALO
46°
45°
44°
43°
83°
82°
81°
80°
79°

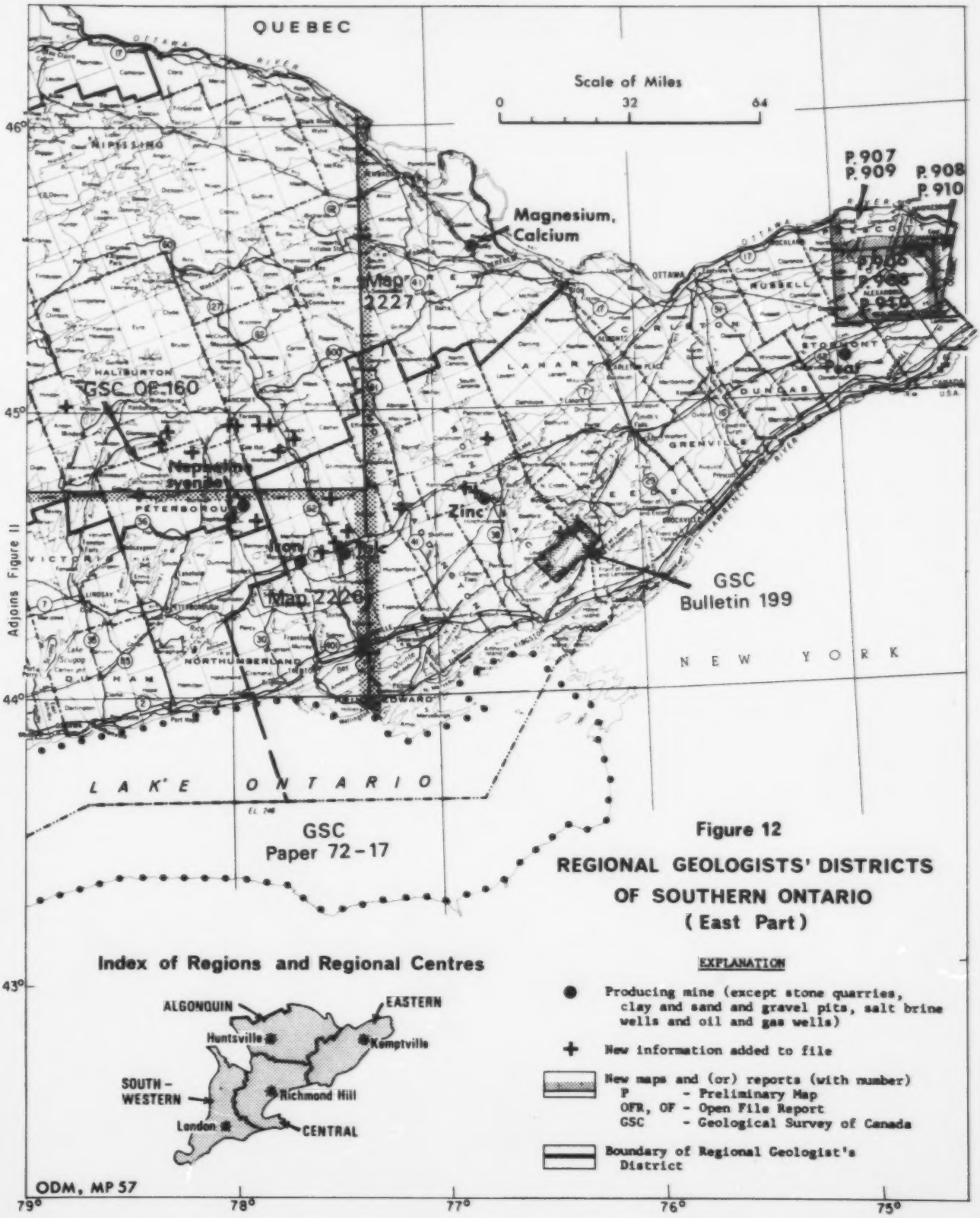

Figure 12

REGIONAL GEOLOGISTS' DISTRICTS OF SOUTHERN ONTARIO (East Part)

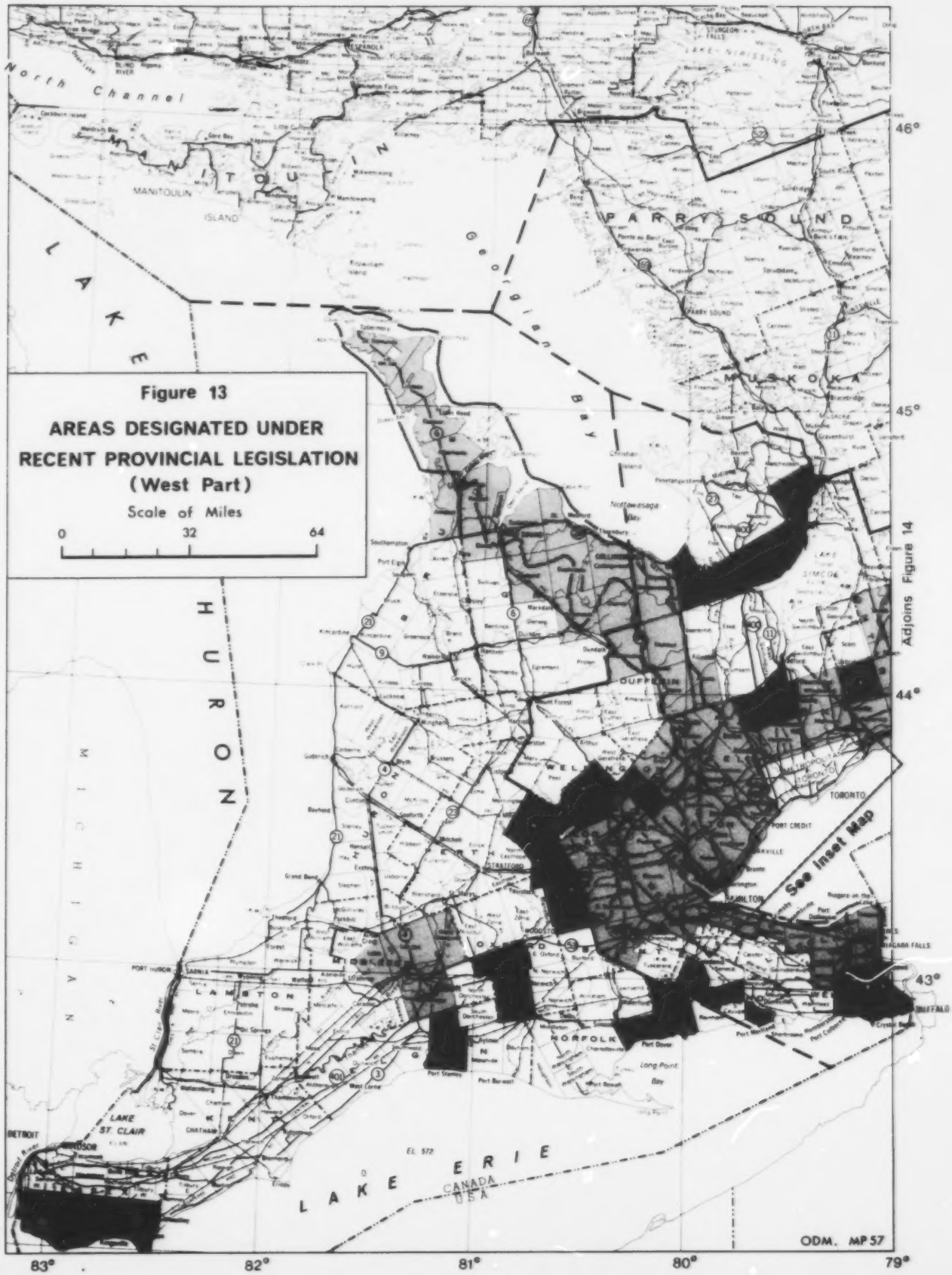

Figure 13

AREAS DESIGNATED UNDER RECENT PROVINCIAL LEGISLATION (West Part)

Scale of Miles

0 32 64

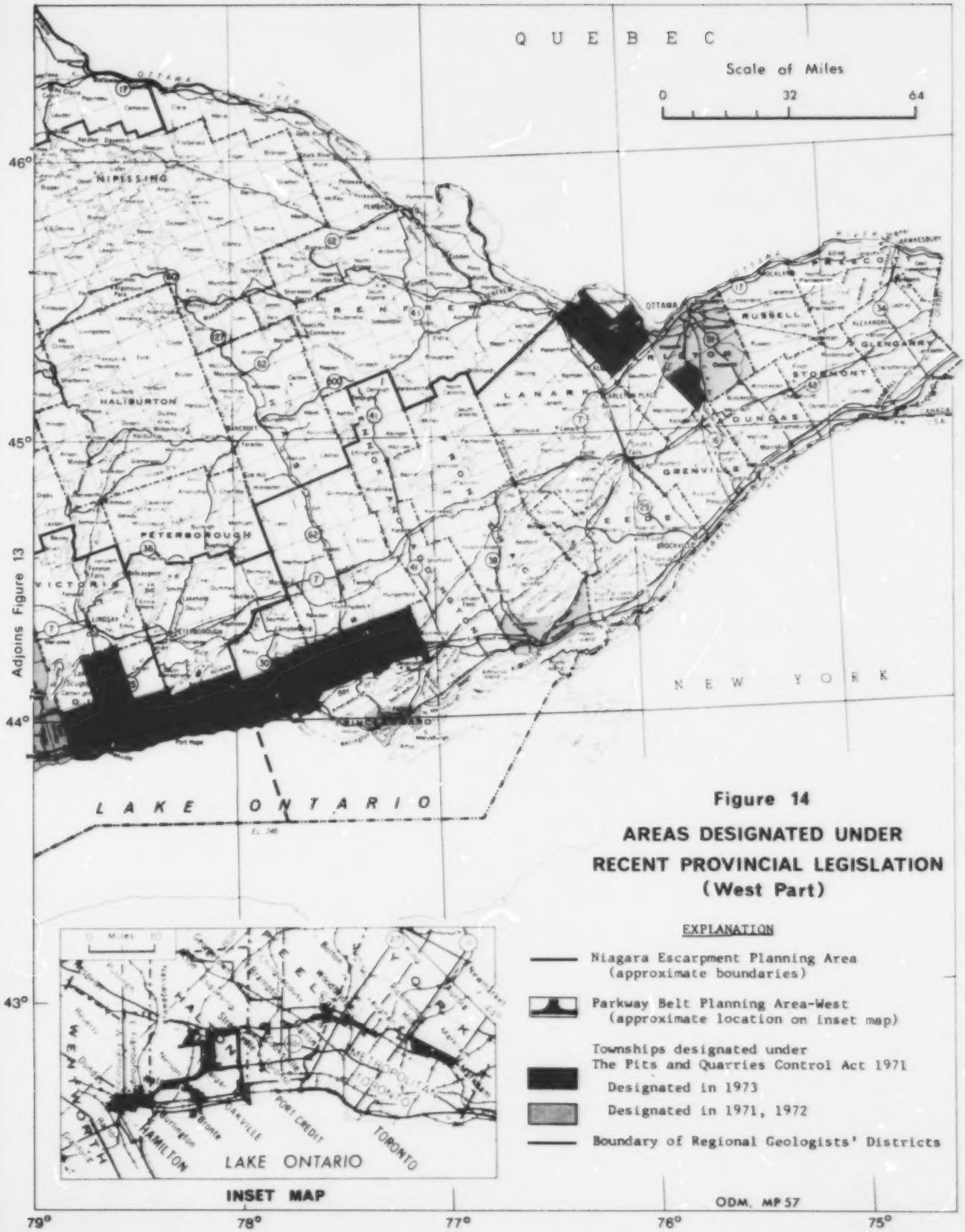

Figure 14

AREAS DESIGNATED UNDER RECENT PROVINCIAL LEGISLATION (West Part)

EXPLANATION

- Niagara Escarpment Planning Area (approximate boundaries)
- Parkway Belt Planning Area-West (approximate location on inset map)
- Townships designated under The Pits and Quarries Control Act 1971
  - Designated in 1973
  - Designated in 1971, 1972
- Boundary of Regional Geologists' Districts

SOUTHERN ONTARIO REGIONS

By

Shirley J. Gibson[1]

INTRODUCTION

During this year of transition to the new regional structure, Shirley Gibson of the Geoservices Section (formerly Data Retrieval and Education Section) continued the upkeep of Southern Ontario files, which were kept in the Geoservices Section. Toward the end of the year, the files were divided in preparation for transfer to regional offices in London, Richmond Hill and Sudbury. The Eastern and Algonquin Region files are being retained in Toronto at present. Some information from the files was photocopied and added to the mineral deposit files of the Geoscience Data Centre, Geoservices Section, Toronto. Along with other Geological Branch staff members, she also answered enquiries concerning Southern Ontario. Owing to her former association with the Southern Ontario Resident Geologist's office, Miss Gibson was responsible for revision of the Eastern Region part of the Ontario Mineral Map, scheduled for publication in 1974.

U.J. Vagners, formerly of the Phanerozoic Section, is Regional Geologist for the Central Region, with an office in regional headquarters at Richmond Hill. He is also acting as Regional Geologist for the Algonquin Region. Most of his time was spent in providing geological information for ministry programs in the regions, especially those programs concerned with land use planning. He also worked with conservation authorities and regional municipalities: Grand River Conservation Authority, Metropolitan Toronto and Region Conservation Authority, Otonabee Region Conservation Authority, Halton Region Conservation Authority and the regional municipalities of Niagara and York. He directed a geological survey of Six Mile Lake Provincial Park for the Huronia District in the Central Region and reviewed geological work done by other geologists in parks of the Algonquin and Central Regions. He was involved in problems related to Lake Ontario Cement Company's sand operations near Sandbanks Provincial Park. He spent a week with an ODM field party interpreting Quaternary materials for a geochemical study west of Matachewan. He was a member of the Ministry task force on the Regional Geological Program. He took part in the Man and Resources program and attended the conference in Toronto. He was a member of the steering committee for the mineral aggregate study of the Central Ontario Planning Region carried out by Proctor & Redfern Limited for the Ministry. The area covered by this

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[1]Geological Assistant, Geoscience Data Centre, Geoservices Section, Geological Branch, Ontario Division of Mines. Manuscript approved for publication by the Chief, Geoservices Section, 18 April 1974.

study includes the Central Region and parts of the surrounding regions. The full report and a summary will be available for distribution in the spring of 1974. He gave a lecture 'Glacial Geology and Boulder Tracing' as part of the special topics course of the mineral exploration classes in Toronto. He also continued work on the Quaternary geology of the Lucan and Windsor-Essex areas.

R.J. Beards is Regional Geologist for the Southwestern Region and P.E. Burns is Geological Assistant. The main functions of the office are liaison with industry and the supplying of geological information, and oil and gas well locations for regional planning. Mr. Beards is also part of the Petroleum Resources Section of the Mineral Resources Branch, where he has worked for several years. His duties in the Petroleum Resources Section include the interpretation of stratigraphy of well logs and samples for all wells drilled in the Paleozoic in Ontario. In October, he presented a paper entitled "Silurian Geology of Lake Erie" to the Ontario Petroleum Institute in Toronto.

During the year, G.R. Guillet and Mrs. Lenore Fordyce left the Ministry, and the administration of the mineral exploration assistance program, formerly carried out by the office, was transferred to S.A. Ferguson, Special Projects Geologist.

MINING ACTIVITY

Eastern Region

The Long Lake zinc mine, owned jointly by Lynx-Canada Explorations Limited and Canadian Reynolds Metals Company Limited, opened in 1973. Milling started March 19, 1973 and full production was achieved in April. The official opening was held June 27 (Northern Miner 1973a; Mikkelborg 1973). The ore is treated in a heavy-media separation plant at the rate of 200-300 tons per day and is then trucked to the Balmat-Edwards mill of St. Joe Minerals Corporation at Balmat, New York. In 1973, 31,000 tons of concentrate containing 12.5 million pounds of zinc were shipped. In November and December, 7,000 tons of concentrate were shipped, containing 3 million pounds of zinc (Northern Miner 1974). The ore body, which averages 23 percent zinc, is estimated to contain 30,000,000 pounds of zinc, but a revised and improved reserves estimate is expected early in 1974 (Northern Miner 1973a; 1974).

There were no other major changes in the nature of mining activity carried out in the Eastern Region. The Marmoraton Mining Company at Marmora produces iron ore pellets of 65 percent iron at an annual capacity of 500,000 tons. Canada Talc Industries Limited, the only Ontario talc producer, is located at Madoc. Diamond Peat Moss operates in Stormont County. Cement is produced by three companies. Canada Cement Lafarge Limited has opened a new quarry and plant at Bath, in Ernestown Township, and is phasing out its Belleville quarry and plant. Lake Ontario Cement Limited has a quarry at Picton and is expanding its adjacent plant. St.

Lawrence Cement Company quarries limestone at Colborne (Ogden Point) and transports it to its Clarkson plant. Other mineral production in the Eastern Region is derived from clay, shale, marble, sandstone, limestone, trap, and sand and gravel.

Algonquin Region

Chromasco Corporation Limited produces magnesium and calcium and minor titanium, strontium, barium, and zirconium from high purity dolomite deposits near Haley, in Renfrew County. Nepheline syenite is produced from Blue Mountain, in Methuen Township by Indusmin Limited and by Sobin Chemicals (Canada) Limited (formerly International Minerals and Chemical Corporation Limited). Other mineral production in the Algonquin Region is derived from clay, marble, limestone, granite, trap, and sand and gravel.

Central Region

Gypsum is produced by Canadian Gypsum Company Limited at Hagersville and by Domtar Construction Materials Limited at Caledonia. Peat is produced by Atkins & Durbrow Limited southwest of Welland. Cement is produced by St. Mary's Cement Limited at Bowmanville. Other mineral production in the Central Region is derived from clay, shale, limestone, granite, sandstone, sand, and gravel.

Southwestern Region

Salt is mined by Domtar Chemicals Limited at Goderich and by The Canadian Rock Salt Company Limited at Windsor. Salt is produced from brine wells by Domtar Chemicals Limited at Goderich, by The Canadian Salt Company Limited at Windsor, by Allied Chemical, Canada, Limited at Amherstburg and by Dow Chemical of Canada Limited at Sarnia. Other mineral production in the Southwestern Region is derived from clay, limestone, sand and gravel, oil and gas.

EXPLORATION ACTIVITY

Exploration activity increased in 1973. During the year, 470 claims were recorded in the Eastern Ontario Mining Division (which is composed of the four southern regions) and 493 claims were cancelled, leaving 1,050 active claims. The level of staking activity showed a 30 percent increase over that of 1972. Approximately half of the claims staked were located in the five townships of Monmouth, Cavendish, Raglan, Galway, and Cardiff. In the Eastern Region 92 claims were recorded and 68 claims were cancelled, leaving 242 in good standing at year-end. In the Algonquin Region, 371 claims were recorded and 419 were cancelled, leaving 801 in good standing at year-end. In the Central Region, where only Belmont and Harvey Townships have been staked, 7 claims were recorded and 6 were cancelled, leaving 7 active claims. No claim staking has been carried out in the Southwestern Region. There were 5 applications for lease in the Eastern Region and 2 in Algonquin Region.

The total credit for assessment work for the Mining Division showed an increase of more than 50 percent over the previous year. Table 13 compares days of assessment work credit for 1972 and 1973 for the entire Mining Division and lists the portion for each region for 1973. Totals were not compiled on a regional basis for 1972.

Table 13 Assessment Work Recorded in 1972 and 1973

	Number of days assessment credit			
	Eastern Ontario Mining Division		Eastern Region	Algonquin Region
	1972	1973	1973	1973
Diamond drilling	3,488.5	8,558	3,042	5,516
Core samples	-	33	16	17
Manual labour	851	2,221	-	2,221
Power equipment	591	410	-	410
Geophysical surveys	4,160	2,140	1,620	520
Geological surveys	288	940	480	460
Geochemical surveys	360	1,810	-	1,810
Other expenditures	-	35	-	35
	9,738.5	16,147	5,158	10,989

Known exploration activity during 1973 is listed in Table 14. Most activity was directed toward base metals, uranium, and industrial minerals. The location of staking activity reflects a renewed interest in uranium. A list of assessment files received in the Regional Geologist's office during the year is given in Table 15.

GOVERNMENT ACTIVITY

Geological Branch Field Studies

In the Eastern Region, field projects were carried out by the Phanerozoic Geology Section of the Geological Branch and dealt mainly with Quaternary geology and aggregate resource surveys. Q.H.J. Gwyn began a survey of the Quaternary geology and industrial mineral resources of the Alexandria-Hawkesbury area. A compilation of geological and engineering properties of sensitive marine clays of the lowlands east of the Frontenac axis was started in 1973. This joint project is being undertaken by Q.H.J. Gwyn and the National Capital Commission, under the auspices of the Geological Survey of Canada. Maps to be published at a scale of approximately 1 inch to 2 miles will show Quaternary geology, drift thickness, bedrock topography and engineering properties (e.g. shear strength).

In the Algonquin Region, S.B. Lumbers continued his mapping of the Mattawa-Deep River area, which was begun in 1972. Much of the area between Longitudes 78°00'W and 79°00'W and north of Latitude 46°00'N has been mapped at a scale of 1 inch to 1 mile. This project will continue in 1974.

In the Central and Southwestern Regions, several projects were carried out by the Phanerozoic Section. P.G. Telford mapped the Paleozoic rocks of the Niagara Escarpment area in the following 1:50,000 National Topographic Series map-sheet areas: Hamilton East, Brampton East, Bolton East, Guelph East and West, Orangeville West, Dundalk West, Collingwood East and West, and Nottawasaga East and West. G.J. Burwasser mapped the Quaternary geology of the Collingwood and Nottawasaga areas (41 A/8, 41 A/9). W.R. Cowan completed mapping of the Quaternary in the Palmerston area (40 P/15) and began mapping in the Wingham area (40 P/14E). P.F. Karrow of the University of Waterloo mapped Quaternary deposits in the St. Mary's area (40 P/6). B.H. Feenstra completed mapping the Quaternary geology of the Dunnville area (30 L/13).

The projects mentioned above are described in Summary of Field Work, 1973, by the Geological Branch (Milne, Hewitt, and Wolfe 1973). In addition, the preliminary maps for the Alexandria-Hawkesbury area have been published.

A sand and gravel inventory of southern Ontario by G.J. Burwasser, S.E. Yundt and Q.H.J. Gwyn covers the Eastern, Central and Southwestern Regions. Data being computerized includes field descriptions, laboratory results (petrographic numbers and average values of size analyses) and estimates of reserves. The data has been released in an open file computer printout for the Alliston-Newmarket area (Gwyn 1973). Further open file releases are planned and material will be periodically updated. Information will also be available by selective retrieval requests.

R.A. Brinsmead of the Phanerozoic Section carried out several mineral resource surveys, many of which involved field work. Those completed in 1973 were the following: Tay Valley Planning Area (South Sherbrooke, Bathurst, North Burgess, North Elmsley, and Drummond Townships), Central Rideau Planning Area (North Elmsley, South Elmsley, Kitley, Montague, and Wolford Townships), Oxford Township in Grenville County, Lower St. Lawrence Planning Area (Finch, Roxborough, Osnabruck, Cornwall, and Charlottenburgh Townships), South Montague Township, Darlington Township, North Wellington area (Minto, Arthur, West Luther, Maryborough, and Peel Townships) and Grey County.

Geological Lectures

Basic mineral exploration classes were conducted by the Geoscience Information Office of the Geoservices Section, Geological Branch, in four southern Ontario locations (Chatham, Bancroft, Toronto, and Huntsville). Average attendance at the four courses totalled 501 of 713 registered.

Attendance at the special topics course in Toronto averaged 94 of 187 registered. Two field courses held in the Madoc area had a total of 35 participants. Eleven Junior Ranger camps were visited in the four southern regions during the summer of 1973. Other activities included leading a two-day Bruce Peninsula field trip for 48 members of the Ontario Geography Teachers Association, a lecture on federal and provincial government aids for geology teachers presented at the Shell Canada Earth Science Workshop held at the University of Western Ontario and lectures to mineral clubs and various school groups.

Provincial Statutes Affecting the Mineral Industry

Direct provincial government control of land use (including private land use) has increased markedly, especially in the area surrounding Metropolitan Toronto and in the area of the Niagara Escarpment. Three acts passed by the Ontario Legislature in June 1973 will directly affect land use (especially for pits and quarries) in these areas. All three are administered by TEIGA (Ministry of Treasury, Economics and Intergovernmental Affairs).

The Ontario Planning and Development Act, 1973, provides for the preparation and implementation of a development plan for any area designated by the Minister of TEIGA as a development planning area. The development plan will include policies for the development of land and water resources, the general location of industry and commerce, the identification of major land use areas and the provision of major park and open space.

The Niagara Escarpment Planning and Development Act, 1973, is similar to the above act and relates specifically to the development plan for the Niagara Escarpment area. It establishes a Niagara Escarpment Commission to draw up a Plan for the Niagara Escarpment Planning Area (Figure 13). Provision is made for the designation of development control areas, in which a permit is required for any development, unless it is of a type exempted under the regulations. Any development would have to conform to the Niagara Escarpment Plan and to the purpose of the act, which is "...to provide for the maintenance of the Niagara Escarpment and land in its vicinity substantially as a continuous natural environment, and to ensure only such development occurs as is compatible with that natural environment".

The Parkway Belt Planning and Development Act, 1973, provides for a development plan, The Parkway Belt Plan, for the area. The west part of the Parkway Belt forms a network in the area between Dundas and Markham (see Figure 13). The east part (not yet designated) will extend to Oshawa. A discussion of policy relating to these three acts, including maps of the areas involved, has been published (TEIGA 1973).

The Ontario Legislature passed The Pits and Quarries Control Act, 1971, to establish and enforce uniform regulation of the operation of all pits and quarries in designated areas. An application for the required license must be accompanied by a detailed site plan which includes a pit development plan and progressive and ultimate rehabilitation plans. An annual security deposit, based on the previous year's production, is required to insure rehabilitation. During 1973, 53 additional townships were designated. Figures 13 and 14 show these and previously designated townships. The Minister of Natural Resources has stated that it is planned to designate the remainder of the province.

Geological Survey of Canada Field Studies

Field studies by the Geological Survey of Canada are summarized in several reports (GSC 1973a; 1973b; 1974) and are shown on an index map (GSC 1973c). One interesting project is an investigation of a uranium occurrence associated with hydrocarbons in Paleozoic limestone (March Formation) in March Township near Ottawa. The occurrence was detected by a gamma-ray spectrometer test profile flown by the GSC in October 1972. Analysis of a composite sample of outcrop material gave 0.02 percent U_3O_8. A relatively pure sample of the hydrocarbon gave 0.71 percent U_3O_8. Also investigated were an auriferous uranian hydrocarbon, and gold-brannerite association in samples from the Richardson gold mine at Eldorado.

Other investigations in the Eastern Region include dispersion of fluorine near fluorite deposits in the Madoc area; barite and fluorite deposits of southeastern Ontario; uranium enrichment associated with the Deloro stock in Madoc Township; environmental prototype study of the Ottawa-Hull area; testing the use of subaquatic organic gells as a prospecting method near Clyde Forks; testing of airborne INPUT and resistivity electromagnetic systems over conductive clays in the Hawkesbury area; and a comparison of seismic sources for shallow seismic surveying conducted in Carleton County near North Gower.

In the Algonquin Region, the Quaternary geology of the Haliburton-Burleigh Falls area was mapped.

In the Southwestern and Central Regions, projects undertaken include conodont biostratigraphy of Silurian and Devonian rocks, stratigraphic and engineering studies of unconsolidated sediments of central Lake Erie near Erieau, and paleomagnetic studies of a freshwater lake sediment core of Late Pleistocene age from a kettle lake near Woodstock.

Other investigations of general interest are summarized in the GSC reports mentioned above.

NEW INFORMATION

Reports of work on unpatented mining claims submitted for assessment credit are placed on file in the Regional Geologist's office and in the Assessment Files Research Office in Toronto. The files received for the Southern Ontario Regional Geologists' offices during 1973 are listed in Table 15, and the location of work is shown in Figures 11 and 12. At present these files are retained in Toronto, but they may be transferred to the regional offices during 1974.

Other new information on file includes a prospectus filed with the Ontario Securities Commission (Table 16) and various newspaper clippings. Recent publications are listed in the following sections and the location of some is shown in Figures 11 and 12.

RECOMMENDATIONS FOR EXPLORATION

With the improving outlook for uranium, parts of the Grenville Province warrant examination for radioactive occurrences. During the 1967-1969 period of uranium exploration in southern Ontario, uranium occurrences were first widely explored outside the area of the well known Bancroft deposits: to the west in Galway and Snowdon Townships and to the east and southeast in the Palmerston-Clarendon-Olden Townships area, South Canonto Township, and Sheffield Township. These occurrences, similar to the Bancroft deposits, are located in or near felsic intrusive rocks of the high metamorphic grade area of the Grenville Province and are associated with pegmatitic rocks. The Ontario Geological Map, Southern Sheet (Ayres et al. 1970), a recent interpretation separating intrusive felsic rocks from felsic metasediments in the Grenville Province, shows that felsic intrusions underlie a large part of the Province south of a line between Minden and Arnprior.

Base metal prospects are still receiving attention in southern Ontario. The recent success of Lynx-Canada Explorations Limited adds emphasis to this commodity group and is directly responsible for continuing exploration activity in the area of their Long Lake mine. The Lynx-Canada orebody occurs as high-grade sphalerite lenses in a band of Grenville marble which has been intruded by diorite and gabbro and later by granite (see Gibson 1973). Willroy Mines Limited still holds a nickel-copper deposit in Limerick Township where reserves of 1,800,000 tons averaging 0.91 percent nickel, 0.26 percent copper and 0.06 percent cobalt to a depth of 1,200 feet were established in 1971 (Northern Miner 1971). This deposit occurs in a metapyroxenite phase of the mafic intrusive Thanet Complex. Other deposits of zinc in marble bands and nickel-copper in mafic intrusions are known in southern Ontario. Copper occurs in various environments. These should provide good exploration targets.

Gold properties across the province are attracting renewed interest. Most Grenville deposits occur in the area of low grade regional metamorphism, approximately Marmora to Clarendon Townships (Lumbers 1964). Many of the old mines and prospects have not been explored beyond the shallow workings of the late 19th and early 20th centuries.

Industrial minerals are always potential exploration targets in southern Ontario. Ram Petroleums Limited and Taman Resources Limited recently outlined a tremolite-talc deposit of 2.5 million tons to a depth of 200 feet in Palmerston Township (Northern Miner 1973b). A recent review of industrial mineral potential by G.R. Guillet (1973) suggested fluorite and high purity white marble for mineral filler as exploration targets in southern Ontario. There is always a good market for sand and gravel deposits near urban areas.

ODM PUBLICATIONS RELEASED IN 1973

P.814 Drift Thickness Series, Windsor-Essex Area (Western Part), Southern Ontario (40 G/15W, 40 J/2W, 40 J/3E, 40 J/6E, 40 J/7W), scale 1:50,000. Geology by U.J. Vagners, E.V. Sado and S.E. Yundt, 1970, 1971, 1972.

P.815 Drift Thickness Series, Windsor-Essex Area (Eastern Part), Southern Ontario (40 G/10E, 40 G/15, 40 J/2, 40 J/7), scale 1:50,000. Geology by U.J. Vagners, E.V. Sado and S.E. Yundt, 1970, 1971, 1972.

P.835 Quaternary Geology of the Alliston Area, Southern Ontario (31 D/4), scale 1:50,000. Geology by Q.H.J. Gwyn, S. White and assistants, 1972.

P.836 Quaternary Geology of the Newmarket Area, Southern Ontario (31 D/3), scale 1:50,000. Geology by Q.H.J. Gwyn, R.N.W. DiLabio and Assistants, 1972.

P.841 Uxbridge, Whitchurch and Markham Townships (parts of), York and Ontario Counties, Interpretation of Airborne Resistivity Values, Geophysical Series (31 D/3, 30 M/14), scale 1 inch to ½ mile. Interpretation by R.S. Middleton, 1973, from surveys shown on P.725 and P.726, issued 1971.

P.848 Quaternary Geology of the Orangeville Area, Southern Ontario (40 P/16), scale 1:50,000. Geology by W.R. Cowan, D.R. Sharpe and assistants, 1971, 1972.

P.906 Quaternary Geology of the Alexandria Area, Southern Ontario (31 G/7), scale 1:50,000. Geology by Q.H.J. Gwyn and H. Lohse, 1973.

P.907 Bedrock Topography Series, Hawkesbury-Lachute Area, Southern Ontario (31 G/9, 31 G/10), scale 1:50,000. Geology by Q.H.J. Gwyn and K. Girard with the assistance of J. Thibault, 1973.

P.908 Bedrock Topography Series, Alexandria-Vaudreuil Area, Southern Ontario (31 G/7, 31 G/8W), scale 1:50,000. Geology by Q.H.J. Gwyn and K. Girard with the assistance of J. Thibault, 1973.

P.909 Drift Thickness Series, Hawkesbury-Lachute Area, Southern Ontario (31 G/9, 31 G/10), scale 1:50,000. Geology by Q.H.J. Gwyn and J. Thibault with the assistance of K. Girard, 1973.

P.910 Drift Thickness Series, Alexandria-Vaudreuil Area, Southern Ontario (31 G/7, 31 G/8W), scale 1:50,000. Geology by Q.H.J. Gwyn and J. Thibault with the assistance of K. Girard, 1973.

Map 2091 Index of Preliminary Maps, Southern Ontario, revised December 1972. Scale, 1 inch to 16 miles.

Map 2092 Index of Maps in Print, Southern Ontario, revised December 1972. Scale, 1 inch to 16 miles.

Map 2093 Index of Out of Print and Miscellaneous Maps, Southern Ontario, revised December 1972. Scale, 1 inch to 16 miles.

Map 2224 Physiography of Northwestern Portion, Southern Ontario (41 A, B, G, H, J, K), by L.J. Chapman and D.F. Putnam. Scale, 1 inch to 4 miles.

Map 2225 Physiography of Southwestern Portion, Southern Ontario (40 G, I, J, O, P, 41 A), by L.J. Chapman and D.F. Putnam. Scale, 1 inch to 4 miles.

Map 2226 Physiography of South Central Portion, Southern Ontario (30 L, M, N, 31 C, D, 40 I, P, 41 A), by L.J. Chapman and D.F. Putnam. Scale, 1 inch to 4 miles.

Map 2227 Physiography of Eastern Portion, Southern Ontario (30 N, 31 B, C, F, G), by L.J. Chapman and D.F. Putnam. Scale, 1 inch to 4 miles.

Map 2275 Quaternary Geology, Bolton, Southern Ontario (30 M/13), by O.L. White and assistants, 1963, 1964 and 1965 and by P.F. Karrow and assistants, 1962. Scale, 1 inch to 1 mile.

Map 2276 Bedrock Topography, Bolton, Southern Ontario (30 M/13), by O.L. White and assistants, 1963, 1964 and 1965. Scale, 1 inch to 1 mile.

MP12 Reprint — The Study of Minerals and Rocks, Practical Geology and Mineralogy for Prospectors, by E.M. Burwash, seventh edition 1969, reprinted 1973, 22p.

IMR41 — Mineral Fillers, by D.F. Hewitt, 13p.

MP54 — Annual Report of the Resident Geologists' Section, Geological Branch, 1972, edited by E.G. Pye, 180p., 20 figures, 30 tables.

MP55 — Mineral Exploration Topics, by S.A. Ferguson, E.B. Freeman, E.C. Blunden, D.S. Andrews, O.H. Bjarnason, J.A. McCance, and E.C. Hamilton, 173p., 13 tables, 17 figures, 1 photo.

MP56 — Summary of Field Work, 1973, by the Geological Branch edited by V.G. Milne, D.F. Hewitt and W.J. Wolfe, 202p. with various figures and key maps.

OFR 5090 — Sand and Gravel Pits Descriptions, Alliston-Newmarket Area, Southern Ontario (31 D/3, 31 D/4), by Q.H.J. Gwyn, 232p., 3 tables.

OFR 5092 — Petrography and Utilization of Paleozoic Middle Ordovician Carbonate Rocks in Southern Ontario (30 M, N, 31 B, C, D, E, F, 40 I, J, O, P, 41 A, H) by L. Dolar-Mantuani, 155p., 8 tables, 8 figures, 18 photos, and 1 map, scale 1 inch to 16 miles. (Quarries sampled were Ogden Point, Picton, Marysville and Pittsburgh in the Eastern Region and Kirkfield and Uhthoff in the Algonquin Region).

OFR 5094 — Index to 1972 Assessment Work Reports Approved by the end of 1972, by Geoscience Data Centre. Part 1, 104p.; Part 2, 40p.

OFR 5098 — Ground and Airborne Geophysical Studies of Sand and Gravel in Southern Ontario (30 H/14, 31 D/3), by R.S. Middleton, 26p., 30 figures, 2 maps, scale 1 inch to ½ mile, 1 map, scale 1 inch to 800 feet.

1972 Review — Annual Review Mineral Industry 1972, 85p. with various tables, figures and photographs.

Supplement to Bulletin 25, Eleventh Edition, List of Publications 1966-1972, compiled by Geoscience Data Centre, Geological Branch, 86p., 2 figures. Accompanied by Map 2229, Aeromagnetic Index of Ontario, scale 1 inch to 30 miles.

Rocks and Mineral Information 1974 (information as of September 1973), 31p. booklet listing pertinent government publications and company brochures, sources of rock and mineral specimens and addresses of mineral clubs, prepared by Geoscience Information Office, Geoservices Section.

Paper II-1 (a) Background Paper on Ontario Petroleum Resources, Prepared for the Ontario Advisory Committee on Energy; Petroleum Resources Section, various paging (published 1972).

Paper 72-1 Oil and Gas Exploration Drilling and Production Summary, 1971; Petroleum Resources Section, 136p. (published 1973).

Paper 73-2 The Oil and Gas Potential of the "Clinton-Cataract" Reservoirs of Norfolk County, by T.A. MacDougall, 72p. (published 1973).

RECENT PUBLICATIONS, GEOLOGICAL SURVEY OF CANADA

Bulletin 199 Geology of the Loughborough Lake Region, Ontario, with Special Emphasis on the Origin of the Granitoid Rocks - A Contribution to the Syenite Problem, by K.L. Currie and I.F. Ermanovics, 85p. and figures (published 1971, released 1973).

Bulletin 221 Chitinozoa and Acritarcha of the Hamilton Formation (Middle Devonian), Southwestern Ontario, by J.A. Legault, 103p. (published 1973). (Fossils were taken from core from Rock Glen Park and Ipperwash Provincial Park, both in Bosanquet Township, Lambton County and from Moore Township, Lambton County).

Bulletin 226 Part A: Sedimentology of Pleistocene Glacial Varves in Ontario, Canada.
Part B: Nature of the Grain-Size Distribution of Some Pleistocene Glacial Varves of Ontario Canada, by Indranil Banerjee, 60p. (published 1973, released 1974).

Econ. Geol. Report No.27 Geology of Vanadium and Vanadiferous Occurrences of Canada, by E.R. Rose, 130p. Accompanied by Map 1321A, Scale 1:5,000,000 (published 1973).

Paper 71-49 Geology and Engineering Description of the Soils in the Welland-Port Colborne Area, Ontario, by E.B. Owen, 7p., accompanied by Map 8-1971, scale 1:25,000 (published 1972, released 1973).

Paper 72-7 Geological Survey of Canada, Radiocarbon Dates XII, by J.A. Lowdon, R. Wilmeth and W. Blake, Jr., 26p. (published 1972). Materials dated from southern Ontario were human bones from McNabb Township in Renfrew County, charcoal from Sidney Township in Hastings County and charcoal from Radiant Lake in Algonquin Park.

Paper 72-17 — Canada Centre for Inland Waters - Scientific Series No. 10, Environment Canada: Report on the Surficial Sediment Distribution of the Great Lakes, Part 1 - Lake Ontario, by R.L. Thomas, A.L.W. Kemp and C.F.M. Lewis, 52p. (published 1973).

Paper 72-52 — Revised Precambrian Time Scale for the Canadian Shield, by C.H. Stockwell, 4p.

Paper 73-1 Part A — Report of Activities, Part A: April to October 1972, 297p. (published 1973).

Paper 73-1 Part B — Report of Activities, Part B: November 1972 to March 1973, 216p. (published 1973).

Paper 73-27 — Raw Materials of Canada's Mineral Industry, by R.J. Traill, 80p. (published 1973).

Paper 73-28 — An Ionization Chamber for Continuous Monitoring of Atmospheric Radon: Radon-222 Levels in Ottawa and Gatineau Hills, Canada, by Willy Dyck, 11p. (published 1973).

Map 1-1973 — Scientific Program, 1973-74 (includes list of projects, published 1973).

O.F. 160 — Cavendish Township Drilling Program, 1973, an unedited report by D.A. Williams, K.O. Stangl, W.J. Scott and A.V. Dyck, consisting of 7 pages of text, 1 geology map, 3 geology cross-sections and 33 drill logs. This open file and drill core are available for viewing in the G.S.C. library in Ottawa only. Copies will not be available for sale.

Also published were the French editions of the Guidebooks for the Field Excursions of the 24th International Geological Congress held in Montreal in 1972. The guidebooks for southern Ontario were listed in the Resident Geologists' report last year (Gibson 1973).

OTHER RECENT PUBLICATIONS

Cement in Canada; by D.H. Stonehouse, 139p., Department of Energy, Mines and Resources, Mineral Resources Branch, MR 133 (published 1973).

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Development Planning in Ontario
Vol.1 To Save the Escarpment, Report of the Niagara Escarpment Task Force
Vol.2 Government Policy for the Niagara Escarpment
Vol.3 Government Policy for the Parkway Belt: West Ontario Ministry of Treasury, Economic and Intergovernmental Affairs (published 1973).

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Vol.3 Government Policy for the Parkway Belt: West Ontario Ministry of Treasury, Economics and Intergovernmental Affairs.

Table 14 Exploration in 1973

(Compiled from Assessment Work Files and news releases)

Abbreviations

EM - Electromagnetic Survey; GL - Geological Survey; Mag - Magnetometer Survey

Company or Individual	Township	Type of Work	Commodity Sought
		EASTERN REGION	
Beth-Canada Mining Co.	Bedford	GL	Zinc-copper
Freeport Canadian Exploration Co.	Madoc	EM, Mag, Drilling	Base metals
Hesselmann, Heinz K.	Tudor	Drilling	
Lynx-Canada Explorations Ltd.	Olden	Drilling	Zinc
Ram Petroleums Ltd., Taman Resources Ltd.	Palmerston	Sample tests, drilling	Tremolite-talc
		ALGONQUIN REGION	
Bennet, Clarence	McClintock	Sampling, assaying	Copper-nickel
Ciglen, G.T.	Lount	Stripping, trenching	
Consolidated Canadian Faraday Ltd.	Spence	Drilling, evaluation study	Crystalline limestone
Czuppon, Thomas J.	Monmouth	Stripping	
Halas, Frank	Galway	Drilling	
Imperial Oil Ltd.	Monmouth Glamorgan	Scintillometer survey	Uranium
Imperial Oil Ltd. (Mandarin Mines Ltd. property)	Glamorgan	Drilling, trenching, radon isotope survey	Uranium
Landair Explorations Ltd.	Monmouth, Cardiff	Drilling, sampling, mercury tests	Fluorite
MacLan Exploration Ltd.	Faraday	Scintillometer survey, drilling	Uranium
Rantala, Edwin J.	Laurier	Pitting	
Wilson, J.R.	Faraday	Stripping, trenching	
		SOUTHWESTERN REGION	
Texasgulf Inc.	Bruce Peninsula	Geochemical survey	Zinc

Table 15 Assessment Work Received in 1973

Abbreviations

DDH - Diamond Drill Hole
EM - Electromagnetic Survey
GC - Geochemical Survey
GL - Geological Survey
Mag - Magnetometer Survey
RA - Radiometric Survey

County	Township	Ownership (Optionee)	Type of Data	Commodity Sought	Year Work Performed	File No.
			EASTERN REGION			
Frontenac	Bedford	Beth-Canada Mining Co.	GL	Zinc-copper	1973	Bedford 7 (2.1318)*
Frontenac	Olden	William H. Douglas (442 College St., Kingston)	1 DDH (123')		1972	Olden 15
Frontenac	Olden	Lynx-Canada Explorations Ltd.	4 DDH (926')	Zinc	1973	Olden 16
Frontenac	Palmerston	Ram Petroleums Ltd.	GL	Tremolite-talc	1972	Palmerston 8 (2.1095)
Hastings	Madoc	Freeport Canadian Exploration Co., Earl Sager (RR# 2, Madoc)	EM, Mag	Base metals	1973	Madoc 19 (2.1254)
Hastings	Tudor	Heinz K. Hesselmann (732 Detroit Court, Lincoln Park, Michigan 48146 USA)	1 DDH (157') Core specimens		1973	Tudor 17
Lennox & Addington	Kaladar	Thomas C. Michie (7 Sophia Dr., Scarborough)	1 DDH (124')	Gold	1972	Kaladar 7

County	Township	Ownership (Optionee)	Type of Data	Commodity Sought	Year Work Performed	File No.
		ALGONQUIN REGION				
Haliburton	Cardiff	J.R. Wilson (26 Carluke Cr., Apt. 303, Willowdale)	Stripping, trenching		1972	Cardiff 137
Haliburton	Glamorgan	S.W. Evans (29 Southwell Dr., Don Mills) (Imperial Oil Ltd. from Mandarin Mines Ltd.)	4 DDH (1059')	Uranium	1973	Glamorgan 8
Haliburton	Glamorgan	S.W. Evans (Imperial Oil Ltd. from Mandarin Mines Ltd.)	GC (radon isotopes in soil air and snow air)	Uranium	1973	Glamorgan 9 (2.1260)
Haliburton	Hindon	CAM Mines Ltd. (Imperial Oil Ltd.)	Trenching	Copper	1972	Hindon 4
Haliburton	Hindon	CAM Mines Ltd. (Imperial Oil Ltd.)	Mag	Copper	1972	Hindon 5 (2.1082)
Haliburton	Hindon	CAM Mines Ltd. (Imperial Oil Ltd.)	GL, GC	Copper	1972	Hindon 6 (2.1120)
Haliburton	Monmouth	Thomas J. Czuppon (1593 Bathurst St., Toronto)	Stripping		1972	Monmouth 54
Haliburton	Monmouth	Thomas J. Czuppon	Stripping		1973	Monmouth 55
Hastings	Faraday	MacLan Exploration Ltd.	RA	Uranium	1970	Faraday 35 (2.978)
			Mag, EM		1972	
Hastings	Faraday	R.M. Stewart (25 Butterworth Ave., Scarborough)	Stripping, trenching		1972	Faraday 36
Hastings	Faraday	R.M. Stewart	Stripping, trenching		1972	Faraday 37
Hastings	Faraday	W.D. Cameron (RR # 3, Coe Hill)	Stripping, trenching		1972	Faraday 38
Hastings	Faraday	J.R. Wilson	Stripping, trenching		1972-73	Faraday 39
Hastings	Faraday	J.R. Wilson	Stripping, trenching		1972	Faraday 40
Hastings	Faraday	J.R. Wilson	Stripping, trenching		1973	Faraday 41
Hastings	Faraday	MacLan Exploration Ltd.	3 DDH (1017')	Uranium Base metals Molybdenum	1973	Faraday 42
Hastings	Faraday	J.R. Wilson	Stripping, trenching		1972	Faraday 43
Hastings	Limerick	Willroy Mines Ltd.	EM	Nickel-copper	1971	Limerick 12 (2.944)
Hastings	Wollaston	Willroy Mines Ltd.	EM	Nickel-copper	1971 1972	Wollaston 9 (2.940)
Parry Sound	Laurier	Edwin J. Rantala (South River)	Pitting		1973	Laurier 5
Parry Sound	Lount	G.T. Ciglen (365 Bay St., Suite 503, Toronto)	Stripping, trenching		1972 1973	Lount 6
Parry Sound	Spence	Consolidated Canadian Faraday Ltd.	1DDH (320')	Crystalline limestone	1973	Spence 2
Peterborough	Anstruther	T.E. Barton (205 Parkhill Rd. West, Peterborough) (Biron Bay Gold Mines Ltd.)	3 DDH (951')	Iron	1972	Anstruther 39
Peterborough	Galway	William Blott (122 Dalhousie St., St. Catherines)	6 DDH (213')	Uranium	1954	Galway 18**
Peterborough	Galway	Kennac Chibougamau Mines Ltd.	11 DDH (3280')	Uranium	1955	Galway 19**
Peterborough	Galway	Frank Halas (79 Woodycrest Ave., Toronto 6)	6 DDH (470') Core		1972	Galway 20
Peterborough	Galway	Frank Halas	7 DDH (865') Core		1973	Galway 21
Peterborough	Galway	Frank Halas	3 DDH (320')		1973	Galway 22
Peterborough	Methuen	W.A. Brown et al (Trent River)	2 DDH (288')	Iron-titanium	1969	Methuen 14

* Numbers given in parenthesis are those of the Assessment Research Office, Toronto.
** Reports of previously submitted work, added to Regional Geologist's files during 1973.

Table 16 Other Reports Received in 1973

County	Township	Name	Type of Data	Commodity Sought	Year	File No.
Parry Sound	Foley	Power Explorations & Holdings Ltd.	Prospectus	Copper	1973	Foley 2

SUDBURY DISTRICT

By

P.E. Giblin

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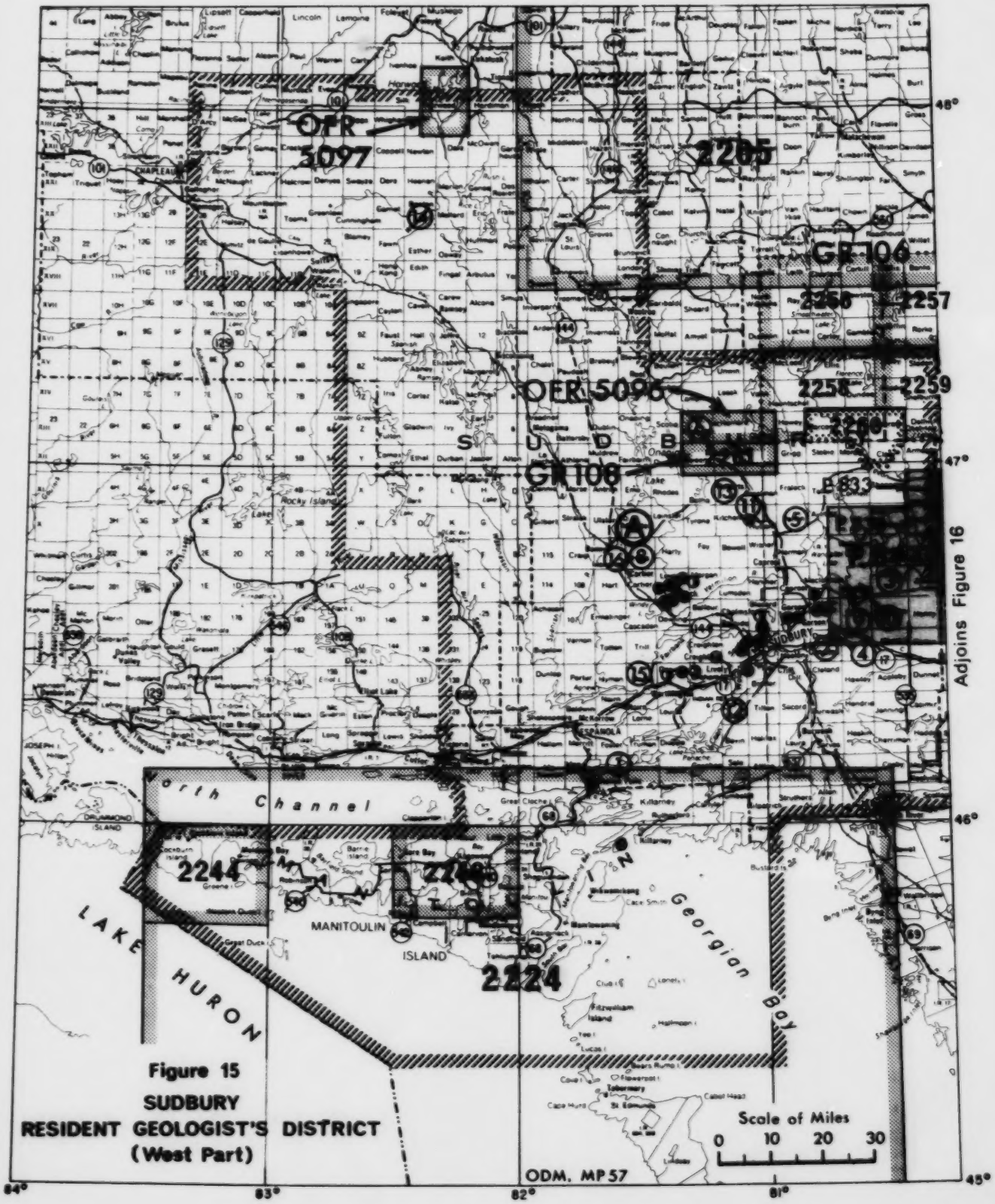

Figure 15
SUDBURY
RESIDENT GEOLOGIST'S DISTRICT
(West Part)

EXPLANATION

Location of Field Party, Ontario Division Mines

Exploration activity in 1973 (excluding exploration on the Nickel Irruptive in vicinity of Sudbury)

Producing mine

Mine under development

Boundary of Resident Geologist's District

New maps and(or) reports (with number)

GR - Geological report (includes coloured map)

OFR - Open File Report (includes black and white maps)

2224 - Geological Compilation Series

P - Preliminary Map

Figure 16

SUDBURY RESIDENT GEOLOGIST'S DISTRICT

(East Part)

SUDBURY DISTRICT

By

P.E. Giblin[1]

INTRODUCTION

The value of Ontario's mineral production reached an all-time high in 1973 for a total of $1,779,271,000, excluding uranium. The record level of mineral production was not at all reflected in the level of exploration activity within the Sudbury Mining Division as a whole (excluding exploration near the City of Sudbury for nickel-copper deposits associated with the Nickel Irruptive). Throughout the remainder of the Mining Division the general level of exploration activity would seem to have reached its lowest level in many decades. In particular, if the years 1971, 1972, and 1973 are considered as a whole, their generally low level of exploration activity is unmatched since 1930, except by the lower level of activity in the early war years 1940-1943.

Clearly this has serious implications for the economy of the area, since an adequate mineral resource base cannot be maintained except by an adequate level of exploration. Given the generally increased use of mineral resources, the level of exploration in the past three years would seem to be inadequate.

A modest reversal of the trend of recent years became evident in the last two months of 1973, when several hundred claims were staked near Sudbury. These were principally located in the Agnew Lake area, 40 miles west of Sudbury, and to a lesser extent in areas north of Sudbury. It remains to be seen whether or not this small spurt of activity is the forerunner of a sustained increase in the level of exploration activity.

RESIDENT GEOLOGIST'S ACTIVITIES

Staff in the Sudbury Resident Geologist's office consists of Y.M. Paquette (Secretary); R.L. Debicki (Geological Assistant); and D.G. Innes (Geologist, Precambrian Geology Section).

K.D. Card (Geologist, Precambrian Geology Section) who has spent several years in the Sudbury area was transferred to the main office in Toronto during the summer. The writer, formerly Resident Geologist in Sudbury, moved to the Northeastern Region headquarters in Sault Ste. Marie during the summer. The position of Resident Geologist, Sudbury, will be filled in the near future.

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[1]Resident Geologist, Ontario Ministry of Natural Resources, 1540B La Salle Blvd., Sudbury (now Regional Geologist, Sault Ste. Marie). Manuscript approved for publication by the Chief, Geoservices Section, Geological Branch, Ontario Division of Mines, 4 March 1974.

In addition to providing our normal consultative service to the public on various facets of geology, exploration, and rock and mineral identification, the staff participated in a variety of projects. R.L. Debicki provided geological input to a lake-water study being carried out by the Ministry of the Environment, carried out field work in Killarney Provincial Park as background for a report interpreting the geology of the park; compiled data for a new edition of the Mineral Map of Ontario; and assisted the writer in studies of mining lands tenure and the mineral industry of the Sudbury Mining Division. The writer collaborated with R.J. Rupert in preparation of a paper entitled "Exploration Possibilities in the Southern Structural Province of the Canadian Shield in Ontario", which was presented in March by R.J. Rupert to the Prospectors and Developers Association annual convention held in Toronto. The paper is being prepared for publication by the Geological Branch. The writer was involved in projects concerning re-organization and regionalization of the Ministry of Natural Resources, revisions to the Mining Act, and land use planning. Background geological and mineral industry data were provided for the Ministry's Strategic Land Use Plan; the writer participated in a task force which prepared a land use plan for an area surrounding the proposed major recreation development at Maple Mountain; prepared a mineral endowment study of Lake Superior Provincial Park; and participated in a variety of smaller projects concerning various aspects of land use. Field examinations were made of certain rock units and mineral occurrences in the Sudbury and Sault Ste. Marie areas.

GEOLOGICAL BRANCH ACTIVITIES

E.C. Blunden of the Geoscience Information Office, Geoservices Section, conducted a mineral exploration course in Espanola.

K.D. Card and D.G. Innes of the Precambrian Geology Section carried out geological mapping in the Benny area, 40 miles northwest of Sudbury (A)[1]. The area includes Hess Township, most of Moncrieff Township, and parts of Munster, Ulster, Hart, and Cartier Townships. During the course of this survey the field party discovered a previously unknown lead-zinc-copper-silver deposit in Hess Township. A minor staking rush followed release by the Ontario Division of Mines of a report describing the occurrence. The occurrence is described in a later section of this report.

S.B. Lumbers of the Precambrian Geology Section carried out mapping in the Mattawa-Deep River area (B).

The results of these surveys are briefly described in Ontario Division of Mines, Miscellaneous Paper 56 (Milne, Hewitt, and Wolfe,1973. p.111-117, 144-147).

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[1]See Figures of Sudbury Resident Geologist's District.

EXPLORATION ACTIVITY

The main area of exploration interest continued to be that underlain by the Nickel Irruptive, near the City of Sudbury, where Falconbridge Nickel Mines Limited and The International Nickel Company of Canada Limited continued exploration for nickel-copper deposits.

Several small-scale exploration programs were carried out in other parts of the Mining Division. These are summarized in the following table. Numbers in the table refer to locations shown on the accompanying maps of the Sudbury Resident Geologist's district.

Table 17 Exploration Activity in 1973

Sudbury Resident Geologist's District

	Company or Individual	Activities
1.	Aggressive Mining Ltd.	Electro-magnetic and induced polarization surveys on copper-nickel prospect, Curtin Townsip.
2.	Arrowhead Silica Corporation	Diamond drilling on kyanite deposit, Antoine Township.
3.	Combined Metal Mines Ltd.	Dewatering and sampling, former North Star Mine, copper-gold prospect, Davis Township.
4.	Copper Prince Mines Ltd.	Magnetometer survey, Falconbridge Township.
5.	Decade Explorations Ltd.	Geological survey, diamond drilling on gold-silver prospect, Parkin Township.
6.	Fairview Mining Inc.	Prospecting, Frechette Township.
7.	Falconbridge Nickel Mines Ltd.	Diamond drilling, Dryden Township.
8.	Geneva Metals Inc.	Diamond drilling on Geneva Lake Mine, former lead-zinc-silver producer, Hess Township.
9.	Glade Explorations Ltd.	Diamond drilling on gold prospect, Scadding Township.
10,11.	Gulf Minerals Canada Ltd.	Trenching, diamond drilling on uranium prospects, Scadding Township (10), Roberts, Creelman, Hutton Townships (11).

	Company or Individual	Activities
12.	Hartland Mines Ltd.	Diamond drilling on Long Lake Mine, former gold producer, Eden Township.
13.	Humphries, H.C.	Diamond drilling, uranium prospect, Roberts Township.
14.	Noranda Exploration Co. Ltd.	Prospecting, Benton Township.
15.	Ryanor Mining Co. Ltd., Newnorth Gold Mines Ltd.	Diamond drilling on copper prospect, Drury Township.
16.	Tex-Sol Explorations Ltd.	Airborne and ground geophysical surveys, parts of Craig, Moncrieff, Ulster, Munster, and Hess Townships.

The last quarter of the year saw considerable staking activity. A total of several hundred claims were staked in the Agnew Lake area, 40 miles west of Sudbury, principally concentrated in Porter, Hyman, Baldwin, and Nairn Townships. Presumably these claims, and smaller numbers of new claims in Turner and Seagram Townships, 45 miles northeast of Sudbury, have been staked as parts of uranium exploration programs. Several claims were staked in Hess Township near the recently discovered lead-zinc-copper-silver occurrence noted earlier.

Two new discoveries of mineralization have significance in that they occur in environments which have not been extensively explored in the past, suggesting that further prospecting of similar environments may be warranted. As noted earlier, last summer a field party led by K.D. Card and D.G. Innes carried out geological mapping in the Benny area, 40 miles northwest of Sudbury (A)[1]. During the course of this work, the party discovered a previously unknown occurrence of lead-zinc-copper-silver mineralization in the Huronian Espanola Formation, located in Hess Township. News of the discovery was released to the public in December 1973, by means of Ontario Division of Mines, Miscellaneous Paper 56, Summary of Field Work, 1973. A minor staking rush followed.

The deposit has been described by Card and Innes (Milne, Hewitt, and Wolfe, 1973, p.114-115) as follows:

> "An apparently previously undiscovered lead-zinc-copper deposit was located during the present mapping in central Hess Township approximately ½ mile (0.8 km) southeast of the east end of Geneva Lake in carbonate rocks of the lower part of the Espanola Formation, which unconformably overlie granitic basement. Mineralization consists of replacement pods, veins, and disseminations of galena, sphalerite, pyrite, and chalcopyrite in recrystallized, silicified dolomite. The main zone of mineralization, averaging about 25 percent sulphide minerals, is exposed over a width of approximately 15 feet (4.5 m) but for only a short distance along strike on the north shore of a

[1]See Figures of Sudbury Resident Geologist's District.

large, dry marsh. The mineralized zone apparently strikes east-west and dips steeply northward conformable with the bedding in the host rocks. To the south, there is a drift-covered interval of about 30 feet (9 m), followed by an 'island' exposure of recrystallized dolomite with disseminated pyrite, chalcopyrite, galena, and sphalerite (up to 10 percent) over an outcrop width of some 30 feet (9 m). At the southeastern end of the 'island' outcrop, steeply-dipping, thin-bedded Espanola dolomite unconformably overlies deformed granitic basement rocks. To the north of the main zone, minor amounts (1 percent to 5 percent) of disseminated sulphide minerals are present in recrystallized dolomite over an outcrop width of about 70 feet (21 m). The dolomite is succeeded by thin-bedded black calcareous siltstone of the upper Espanola Formation. Some 600 feet (180 m) to the east, minor disseminated sulphide minerals, mainly pyrite and galena, are present in an exposure of Espanola dolomite. To the west, the strike of the formation changes abruptly from east-west to south and approximately 1,000 feet (300 m) to the south-west of the main occurrence, recrystallized Espanola dolomite with minor amounts (1 percent to 5 percent) of disseminated galena and pyrite is again exposed. This occurrence definitely warrants further exploration, especially in view of its apparent stratabound nature and possible large size."

The second recent discovery noteworthy for its occurrence in a relatively unexplored geological environment is a copper occurrence in Huronian metavolcanics and metasediments, located in the north ½, lot 9, concession IV, Drury Township, about 25 miles west of Sudbury. The occurrence is currently held by Ryanor Mining Company Limited and Newnorth Gold Mines Limited (15)[1].

In an unpublished report to the Ministry of Natural Resources, D.G. Innes describes the deposit as consisting of a mineralized, silicified shear zone at the contact between Huronian metasediments and metavolcanics. The silicified zone is conformable with the contact, strikes east, and dips steeply south. It has a known strike-length of 425 feet, an average width of 24 feet, and has been traced to a depth of 500 feet by diamond drilling.

Chalcopyrite occurs in thin, subparallel, discontinuous bands which are irregularly distributed in highly silicified metasediments and metavolcanics. Some chalcopyrite also occurs in crosscutting fractures. The distribution of chalcopyrite is irregular and individual bands can be traced for only a few feet. Smaller, similar occurrences have been found nearby.

The main showing has been tested by trenching and approximately 2,500 feet of diamond drilling.

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[1]See Figures of Sudbury Resident Geologist's District.

SUGGESTIONS TO PROSPECTORS

In a paper prepared jointly by R.J. Rupert and the writer, entitled "Exploration Possibilities in the Southern Structural Province of the Canadian Shield in Ontario", presented to the 1973 annual convention of the Prospectors and Developers Association, the authors presented certain suggestions for prospecting, two of which have direct application to the Sudbury area.

The paper reviewed the mineral deposits which occur in the Huronian Espanola Formation. At that time, the known occurrences were:

(a) a copper occurrence in Montgomery Township.

(b) a lead-zinc-cobalt deposit in Hart Township.

(c) a tungsten-copper-silver deposit in Foster Township.

Most of these appear to be skarn deposits with mainly granitic affinities. The authors suggested that since there appears to have been very little prospecting carried out for skarn deposits in the area, further prospecting of the Espanola Formation should be carried out.

Subsequently Card and Innes, during the course of a geological survey of the Benny area (described earlier in this report), discovered lead-zinc-copper-silver mineralization in the Espanola Formation in Hess Township. Although the nature of the mineralization has not yet been determined, its occurrence in the Espanola Formation lends weight to the suggestion that this formation warrants careful prospecting.

The paper also pointed out that possibilities exist for the discovery of presently unknown offset dikes and related nickel-copper deposits near Sudbury.

The association of nickel-copper orebodies with the outer marginal phase of the Nickel Irruptive and with the offsets was recognized early in the history of Sudbury and was used as a criterion for land acquisition by mining companies. As a result most of the area underlain by the Irruptive and the known offsets is now owned by the established companies producing from the area.

One might suppose that, given the long history of prospecting and mining in the area, all of the offsets have been known for many years. However, as recently as 1964, mapping of an area north of the Irruptive by Card and Meyn of the Ontario Division of Mines resulted in tracing the Foy offset for an additional 4 miles (Card, K.D., and Meyn, H.D. 1969, Geology of the Leinster-Bowell Area, District of Sudbury, Ontario Department of Mines, GR65). More recently, extensions to other dikes appear to have been found (Resident Geologist's Files, Ontario Ministry of Natural Resources, Sudbury). Only a small percentage of the area surrounding the Irruptive has been mapped in detail. The offset dikes may be quite narrow and are commonly difficult to distinguish from other mafic dikes which are not ore-bearing.

Considered collectively, these features suggest that careful prospecting may lead to the discovery of further offsets, to extensions of known offsets, and perhaps to the discovery of orebodies within the offsets.

The recent discovery of copper mineralization in a silicified shear zone in Huronian metavolcanics and metasediments in Drury Township (Ryanor occurrence, described earlier in this report) indicates that the Huronian volcanic rocks merit further prospecting. Although these rocks have received sporadic prospecting, they have not received the same intensive work as have most Archean "greenstone" belts. Probably this is due in part to the general lack of felsic components, except at Sudbury, which would appear to decrease the possibility of finding large volcanogenic massive sulphide bodies. Nevertheless, the Huronian volcanic sequence can be a favourable environment for base metal ore, as shown by the example of the Pater Mine. This mine, located at Spragge, produced several million pounds of copper during the 1960's from a silicified shear zone in Huronian metavolcanics.

MINING AND DEVELOPMENT OPERATIONS

In the vicinity of Sudbury, nickel, copper, platinum group metals, gold, and silver were produced by Falconbridge Nickel Mines Limited from the Falconbridge, East Falconbridge, Hardy, Boundary, Onaping, Fecunis, Strathcona, and Longvack South Mines, and by The International Nickel Company of Canada Limited from the MacLennan, Garson, Kirkwood, Frood-Stobie, Little Stobie, Copper Cliff North, Copper Cliff South, Murray open-pit, Creighton, Crean Hill, Levack West, Levack, and Coleman Mines. The MacLennan Mine was closed early in 1973, and the Murray open-pit and Crean Hill Mines resumed production late in the year. Iron ore was also produced by The International Nickel Company of Canada Limited.

Development operations were carried out near Sudbury at the Victoria Mine by The International Nickel Company of Canada Limited, and at the Lockerby, Lindsley, and Fraser Mines by Falconbridge Nickel Mines Limited.

National Steel Corporation of Canada Limited continued production of iron ore pellets from its plant in Hutton Township, 25 miles north of Sudbury.

Silica for smelter flux was produced from the Lawson quarry in Curtin Township by The International Nickel Company of Canada Limited. Indusmin Limited mined quartzite for use in the ceramic industry from a quarry on Badgeley Island in Lake Huron.

NEW INFORMATION

New information received during the year consisted of exploration submitted for assessment work credit, exploration data donated by companies and individuals, company prospectuses, maps and reports published by the Ontario Division of Mines, Ministry of Natural

Resources and by the Geological Survey of Canada, theses, and papers published in scientific and technical journals.

The table below summarizes the assessment work data received for the past 4 years.

Table 18 Assessment Work Received, Sudbury Resident Geologist's District

Type of Work	1970	1971	1972	1973
Geological surveys	41	14	10	10
Geophysical surveys	57	59	39	21
Reports of drilling	140	47	31	17
Total footage of reported drilling	73,895	44,839	20,098	18,404
Reports of trenching	34	47	21	18

Areas covered by maps and reports published by the Ontario Division of Mines are shown on the maps of the Sudbury Resident Geologist's District which accompany this report.

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Breaks, F.W.
1973: Geology of the Keith-Horwood Area, District of Sudbury; Ontario Div. Mines, OFR5097, 108p. Accompanied by maps P.747 and P.748, scale 1 inch to ¼ mile.

Cabri, L.J., Harris, D.C., and Gait, R.I.
1973: Michenerite (PdBiTe) Redefined and Froodite ($PdBi_2$) Confirmed from the Sudbury Area; Canadian Mineralogist, Vol.11, pt.5, p.903-912.

Card, K.D., McIlwaine, W.H., and Meyn, H.D.
1973: Geology of the Maple Mountain Area, Districts of Timiskaming, Nipissing and Sudbury; Ontario Div. Mines GR106, 133p. Accompanied by Maps 2256, 2257, 2258, and 2259, scale 1 inch to 1 mile, and Map 2260, scale 1 inch to ½ mile.

Chapman, L.J. and Putnam, D.F.
1973: Physiography of Northwestern Portion of Southern Ontario; Ontario Div. Mines Map 2224, scale 1 inch to 4 miles.

Cleland, R.S., and Singh, K.H.
1973: Development of 'Post' Pillar Mining at Falconbridge Nickel Mines Limited; CIM Bull., Vol.66, No.732, April 1973, p.57-64.

Dallmeyer, R.D., and Taylor, W.E.G.
1973: Photogrammetric Survey of the Structural Geology of the Sudbury-McGregor Bay District, Ontario, Canada; Geologische Rundschau, Band 62, Heft 2, p.350-356.

Ferguson, S.A., Freeman, E.B., Blunden, E.C., Andrews, D.S., Bjarnason, O.H., McCance, J.A., and Hamilton, E.C.
1973: Mineral Exploration Topics; Ontario Div. Mines, MP55, 173p.

Gates, T.M., and Hurley, P.M.
1973: Evaluation of Rb-Sr Dating Methods Applied to the Matachewan, Abitibi, Mackenzie and Sudbury Dike Swarms in Canada; Canadian J. Earth Sci., Vol.10, No.6, p.900-919.

Harrison, J.E.
1972: Quaternary Geology of the North Bay-Mattawa Region; Geol. Surv. Canada, Paper 71-26, 37p. Accompanied by Map 3-1971, scale 1:125,000.

Hawke, D.
1973: Metamorphism of the Sudbury Gabbro; Unpub. B.Sc. Thesis, Laurentian University, Sudbury.

Liberty, B.A.
1972a: Meldrum Bay Area, Manitoulin District; Ontario Div. Mines, Map 2244, scale 1 inch to 1 mile. Geology 1954-1957, 1966 to 1971.

1972b: Kagawong Area, Manitoulin District; Ontario Div. Mines, Map 2246, scale 1 inch to 1 mile. Geology 1954-1957, 1966-1971.

Lumbers, S.B.
1973: River Valley Area, Districts of Nipissing and Sudbury; Ontario Div. of Mines, Prelim. Map P.844, Geol. Ser., scale 1 inch to 1 mile. Geology 1971, 1972.

Meyn, H.D.
1973a: Afton Township, District of Sudbury; Ontario Div. Mines, Prelim. Map P.833, Geol. Ser., scale 1 inch to ¼ mile. Geology 1972.

1973b: Macbeth Township, District of Sudbury; Ontario Div. Mines, Prelim. Map P.834, Geol. Ser., scale 1 inch to ¼ mile. Geology 1972.

1973c: Geology of Frechette, McNamara, and Cotton Townships, District of Sudbury; Ontario Div. Mines, OFR5096, 90p. Accompanied by maps P.734, P.735, and P.736, scale 1 inch to ¼ mile.

1973d: Sweeny, Beaumont, and Beresford Townships, Sudbury District; Ontario Div. Mines, Map 2261, scale 1 inch to ½ mile. Geology 1970.

Milne, V.G., Hewitt, D.F., and Wolfe, W.J.
1973: Summary of Field Work, 1973, by the Geological Branch; Ontario Div. Mines, MP56, 202p.

Mining Magazine
1973: Direct Reduction-Falconbridge Nickel/Iron Pellet Plant Closure Delivers Further Setback to Reduction Processes; Mining Magazine, Vol.128, No.2, February 1973, p.107-109.

Geoscience Data Centre
1973: Index to 1972 Assessment Work Reports, Parts 1 and 2; Ontario Div. Mines, OFR5094, Part 1, 104p., part 2, 40p.

ODM-GSC
1973: Aeromagnetic Coverage of Ontario in 5 Sheets, Produced as Transparent Film Positives, scale 1 inch to 16 miles.

Palmer, H.C., and Carmichael, C.M.
1973: Paleomagnetism of some Grenville Province Rocks; Canadian J. Earth Sci., Vol.10, No.8, p.1175-1190.

Pye, E.G. (Editor)
1973: Annual Report of Resident Geologists' Section, Geological Branch, 1972; Ontario Div. Mines, MP54, 180p.

Pyke, D.R., Ayres, L.D., and Innes, D.G.
1973: Timmins-Kirkland Lake, Cochrane, Sudbury, and Timiskaming Districts; Ontario Div. Mines, Map 2205, Geol. Comp. Ser., scale 1 inch to 4 miles. Compilation 1970-1971.

Schwarcz, H.P.
1973: Sulphur Isotope Analyses of some Sudbury, Ontario Ores; Canadian J. Earth Sci., Vol.10, No.9, p.1444-1459.

Young, G.M.
1973: Origin of Carbonate-Rich Early Proterozoic Espanola Formation, Ontario, Canada; Geol. Soc. America Bull., Vol.84, No.1, pp.135-160.

NEW ODM MAPS AND REPORTS ISSUED IN 1973

P.800 (Issued Dec. 28, 1972)	Great Lakes-Ottawa River Sheet, Algoma, Sudbury, Timiskaming, Nipissing, Manitoulin Districts, and Southern Ontario, (41, 31, 40, 30). Aeromagnetic Compilation Map, compiled from data from the Geological Survey of Canada, scale 1 inch to 16 miles.
P.833	Afton Township, District of Sudbury (41 I/16). Geology by H.D. Meyn and assistants, 1972, scale 1 inch to ¼ mile.

P.834 Macbeth Township, District of Sudbury (41 I/16). Geology by H.D. Meyn and assistants, 1972, scale 1 inch to ¼ mile.

P.844 River Valley Area, Districts of Nipissing and Sudbury (41 I/9, 41 I/10E, 41 I/15E, 41 I/16). Geology by S.B. Lumbers and assistants, 1971, 1972, 1973, scale 1 inch to 1 mile.

Map 2205 Timmins-Kirkland Lake, Cochrane, Sudbury, and Timiskaming Districts (31M, 32D, 41P, 42A). Geological compilation by D.R. Pyke, L.D. Ayres, and D.G. Innes, 1970, 1971. Previous compilation by Ginn et al., Map 2046, 1964, scale 1 inch to 4 miles.

Map 2224 Physiography of Northwestern Portion, Southern Ontario (41 A, B, G, H, J, K). Physiography by L.J. Chapman and D.F. Putnam, scale 1 inch to 4 miles.

Map 2244 Meldrum Bay Area, Manitoulin District, (41 G/14). Geology by B.A. Liberty, 1954-1957, 1966-1971, scale 1 inch to 1 mile.

Map 2246 Kagawong Area, District of Manitoulin, (41 G/16). Geology by B.A. Liberty, 1954-1957, 1966-1971, scale 1 inch to 1 mile.

Map 2261 Sweeny, Beaumont, Beresford Townships, Sudbury District (41 I/14, 41 I/15, 41 P/2, 41 P/3). Geology by H.D. Meyn and assistants, 1970, scale 1 inch to ½ mile.

GR106 Geology of the Maple Mountain Area, Districts of Timiskaming, Nipissing, and Sudbury, (41 P/1, 41 P/2, 41 P/7, 41 P/8, 41 P/9, 41 P/10), by K.D. Card, W.H. McIlwaine, and H.D. Meyn, 133p., 16 tables, 16 figures, 16 photographs. Accompanied by: Map 2256, Smoothwater Lake, District of Timiskaming, scale 1 inch to 1 mile; Map 2257, Makobe Lake, District of Timiskaming, scale 1 inch to 1 mile; Map 2258, Solace Lake, District of Sudbury, scale 1 inch to 1 mile; Map 2259, Diamond Lake, Districts of Sudbury, Timiskaming, and Nipissing, scale 1 inch to 1 mile; Map 2260, Yorston Lake, District of Sudbury, scale 1 inch to ½ mile.

GR108 Geology of Sweeny, Beaumont, and Beresford Townships, District of Sudbury (41 I/14, 41 I/15, 41 P/2, 41 P/3), by H.D. Meyn, 50p., 7 tables, 3 figures, 16 photos. Accompanied by: Map 2261, scale 1 inch to ½ mile.

OFR5094 Index to 1972 Assessment Work Reports Approved by the end of 1972, Ontario (31, 32, 41, 42, 48, 52, 53), by Geoscience Data Centre, part 1, 104p.; part 2, 40p.

OFR5096 Geology of Frechette, McNamara, and Cotton Townships, District of Sudbury (41 P/2, 41 P/3), by H.D. Meyn, 90p., 8 figures, 6 tables, 11 photos, and 3 maps, scale 1 inch to ¼ mile.

OFR5097 Geology of the Keith-Horwood Area, District of Sudbury (41 0/16, 42 B/1), by F.W. Breaks, 108p., 2 figures, 6 tables, 18 photos (xerox copies), 2 maps, scale 1 inch to ¼ mile.

MP54 Annual Report of Resident Geologists' Section, Geological Branch, 1972, edited by E.G. Pye, 180p.

MP55 Mineral Exploration Topics, by S.A. Ferguson, E.B. Freeman, E.C. Blunden, D.S. Andrews, O.H. Bjarnason, J.A. McCance, and E.C. Hamilton, 173p., 13 tables, 17 figures, 1 photo.

MP56 Summary of Field Work, 1973, by the Geological Branch; edited by V.G. Milne, D.F. Hewitt, and W.J. Wolfe, 202p.

Aeromagnetic Compilation Map, Southern Sheet, compiled from Map P.800, scale 1 inch to 16 miles, printed on cronaflex to overlay geological Map 2197. ODM-GSC.

Aeromagnetic Compilation Map, East Central Sheet, compiled from Map P.578 and Map P.800, scale 1 inch to 16 miles, printed on cronaflex to overlay geological Map 2198. ODM-GSC.

Aeromagnetic Compilation Map, West Central Sheet, compiled from Maps P.575, P.576, P.577, P.578, P.800, scale 1 inch to 16 miles, printed on cronaflex to overlay geological Map 2199. ODM-GSC.

Aeromagnetic Compilation Map, Northeast Sheet, compiled from Map P.576 and Map P. 578, scale 1 inch to 16 miles, printed on cronaflex to overlay geological Map 2200. ODM-GSC.

Aeromagnetic Compilation Map, Northwest Sheet, compiled from Map P.575 and Map P.576, scale 1 inch to 16 miles, printed on cronaflex to overlay geological Map 2201. ODM-GSC.

Index Maps A set of 3 maps at a scale of 1 inch to 16 miles showing preliminary maps, maps in print, and maps out of print, for east-central Ontario. Revised to December 1972.

Table 19 Assessment Work Received in 1973

Sudbury Resident Geologist's District

Abbreviations

A	-Airborne	GC	-Geochemical Survey
5 DDH (620')	-5 diamond drill holes totalling 620 feet	GL	-Geological Survey
EM	-Electromagnetic Survey	MAG	-Magnetometer Survey
IP	-Induced Polarization Survey		

Township or Area	Ownership	Type of Data	Commodity Sought
Antoine, Butler Tps.	Arrowhead Silica Corp.	Assays	Kyanite, muscovite
Beaumont, Roberts & Gillies Limit Tps.	Murgor Explorations Ltd.	Prospectus	
Benneweis Tp.	Safari Explorations Ltd.	IP	Cu
Butler Tp.	Arrowhead Silica Corp.	Trenching	Kyanite
Butler & Antoine Tps.	Arrowhead Silica Corp.	Assays, 15 DDH (2,576.2')	Kyanite, Si
Champagne Tp.	Molly River Mines Ltd.	EM, MAG	Cu
Chester Tp.	Beaverbridge Mines Ltd.	Trenching	
	Kingbridge Mines Ltd.	Trenching	
	Lava Minerals Ltd.	IP, Resistivity	Cu, Mo
	Park Precious Metals Inc.	Prospectus	Cu, Au
	Rockzone Mines Ltd.	Prospectus, 14 DDH (4,650'), GL, IP	Au, Cu
	Viewpoint Explorations Ltd.	MAG, IP	Cu, Au
Cunningham Tp.	Dome Exploration (Canada) Ltd.	EM, MAG, 3 DDH (522')	Fe, Cu, Ni
	Huycke, G.	Trenching	
	Newman, Ray G.	1 DDH (147')	Zn, Pb, Cu
Curtin Tp.	Bousquet, Lorne	Trenching	
Davis Tp.	Combined Metal Mines Ltd.	Prospectus	Cu, Au
Denyes Tp.	Falconbridge Nickel Mines Ltd.	Trenching	
Dowling Tp.	International Nickel Co. of Canada Ltd., The	1 DDH (561')	
	Mining Corp. of Canada (1964) Ltd.	1 DDH (800')	
Drury Tp.	Grimsell, S.	Trenching	
Dryden Tp.	Falconbridge Nickel Mines Ltd.	4 DDH (407')	Cu, Ni
Dublin & Batteraby Tps.	Jerome Explorations Ltd.	GL, MAG, EM	Cu, Pb, Zn, Ag
Dublin & McNish Tps.	Jerome Explorations Ltd.	Prospectus	Cu, Ag, Au
Ermatinger Tp.	Balboa "U" Mines Ltd.	Scintillometer, Trenching	U_3O_8, ThO_2
Falconbridge Tp.	Copper Prince Mines Ltd.	Prospectus, GL	Cu
	International Nickel Co. of Canada Ltd., The	GL, MAG	
Foster Tp.	St. Joseph Explorations Ltd.	2 DDH (1243'), GL	Tungsten
Frechette Tp.	Fairview Mining Inc.	Prospectus, GL	Au
Genoa Tp.	Rush Lake Explorations Ltd.	4 DDH (932'), GL	Cu, Au, Pb, Zn
Graham Tp.	Falconbridge Nickel Mines Ltd.	MAG, EM	Cu, Ni
Greenlaw & Denyes Tps.	Bryson, Andrew S.	MAG, EM	
Hanner Tp.	International Nickel Co. of Canada Ltd., The	MAG, EM	Cu, Ni
Heenan Tp.	Falconbridge Nickel Mines Ltd.	MAG	Au
	Fumerton Mining and Development Co. Ltd.	MAG, GL	Au

Township or Area	Ownership	Type of Data	Commodity Sought
Hess Tp.	Geneva Metals Inc.	Prospectus	Zn, Pb
	Tex-Sol Explorations Ltd.	Airborne EM	
Hong Kong & Edith Tps.	Hudson Bay Exploration and Development Co. Ltd.	4 DDH (1257')	
Horwood Tp.	Ameranium Mines Ltd.		Cu, Au
	Hollinger Mines Ltd.	Assay, 1 DDH (201')	Mo
	Proto Exploration & Holdings Inc.	EM	Au, Cu
Horwood & Hardiman Tps.	Hollinger Mines Ltd.	8 DDH (2121.5')	Mo
Huffman & Osway Tps.	Falconbridge Nickel Mines Ltd.	2 DDH (973')	
Hutton Tp.	Heshka, W.	Trenching	
	Miron, Theodore	Trenching	
Hyman & Nairn Tps.	Buchy, Harry	Trenching	
Jocko Tp.	Mote, M. K.	Trenching	
Loughrin Tp.	Chartrand, Nelson	Trenching	
Lorne Tp.	Chayer, Albert	Trenching	
Mackelcan Tp.	Patrie, J. P.	4 DDH (154'), Trenching	Cu
Mongowin Tp.	Hames, Clifford Marshall	MAG, IP	Cu, Ni
Morgan Tp.	Falconbridge Nickel Mines Ltd.	MAG, GL	Cu, Ni
Parkin Tp.	Decade Explorations Ltd.	Prospectus	Au, Ag, Pb
Raney Tp.	J-Dex Exploration Ltd.	3 DDH (345')	Cu
Roberts Tp.	Humphries, Harold C.	3 DDH (313')	U_3O_8
Roberts, Parkin, Hutton, Creelman, Scadding Tps.	Gulf Minerals Canada Ltd.	Airborne EM, MAG, Radiometric	U
Selkirk Tp.	Mote, G. M.	Trenching	
Tooms, Greenlaw Tps.	Canex Aerial Exploration Ltd.	MAG, EM, GL	Ni, Cu, Zn
Trill Tp.	Falconbridge Nickel Mines Ltd.	1 DDH (1201')	
Turner Tp.	Rivers, Ernest J.	Trenching	
Ulster Tp.	Dupont, Jack	Trenching	
Vernon, Porter Tps.	Canadian Johns-Manville Co. Ltd.	Airborne MAG, Radiometric	U

Table 20 Other Information Received in 1973

Sudbury Resident Geologist's District

Butler, Dryden Tps.	Canada Department of Mines and Technical Services	Kyanite testwork reports	Ky
Grant, Field, Springer Tps.	Malartic Gold Fields (Quebec) Ltd.	Location map, summary report, assays, scintillometer survey	U
Hutton, Parkin Tps.	MacKay, D. A.	Property report	Au
Hyman Tp.	Agnew Lake Mines Ltd.	GL report	U

THUNDER BAY DISTRICT

By

K.G. Fenwick

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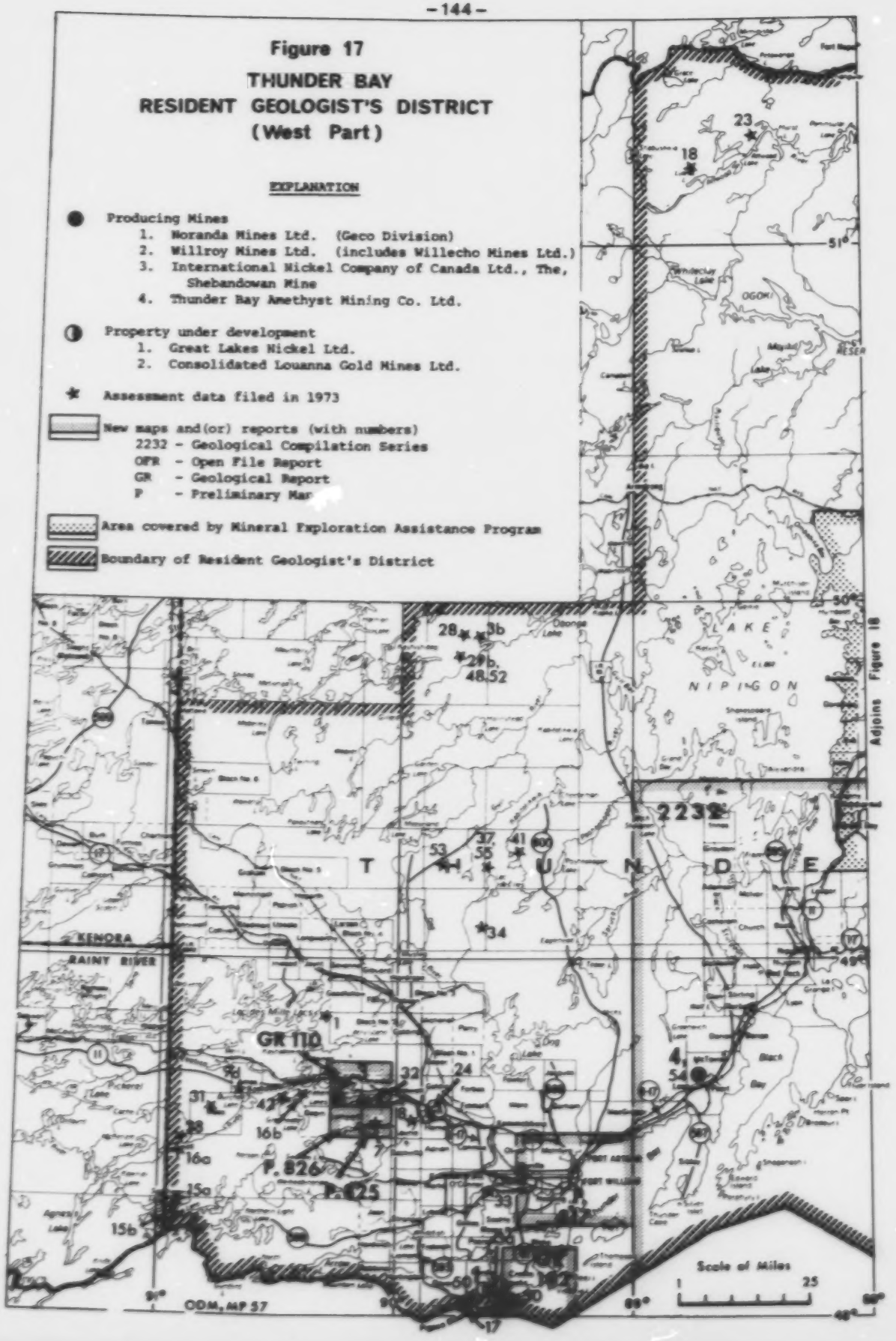
Figure 17

THUNDER BAY
RESIDENT GEOLOGIST'S DISTRICT
(West Part)


EXPLANATION
Producing Mines
1. Noranda Mines Ltd. (Geco Division)
2. Willroy Mines Ltd. (includes Willecho Mines Ltd.)
3. International Nickel Company of Canada Ltd., The, Shebandowan Mine
4. Thunder Bay Amethyst Mining Co. Ltd.
Property under development
1. Great Lakes Nickel Ltd.
2. Consolidated Louanna Gold Mines Ltd.
Assessment data filed in 1973
New maps and(or) reports (with numbers)
2232 - Geological Compilation Series
OFR - Open File Report
GR - Geological Report
P - Preliminary Map
Area covered by Mineral Exploration Assistance Program
Boundary of Resident Geologist's District
LAKE NIPIGON
T U N D E
2232
GR 110
P. 826
P. 825
KENORA
RAINY RIVER
ODM, MP 57
Scale of Miles
1 25
Adjoins Figure 18

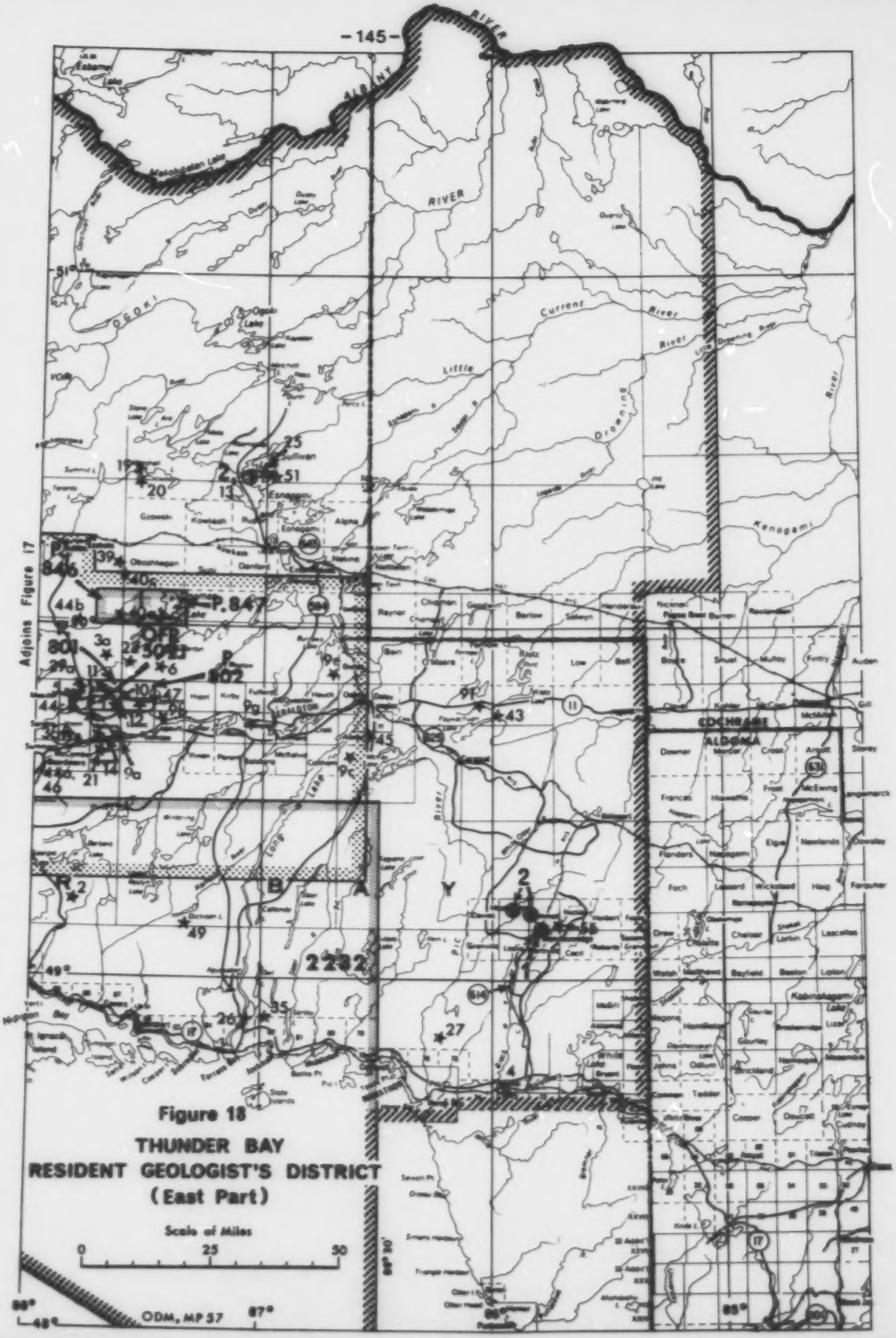


Figure 18

THUNDER BAY
RESIDENT GEOLOGIST'S DISTRICT
(East Part)

THUNDER BAY DISTRICT

By

K.G. Fenwick[1]

INTRODUCTION

Two staff changes have taken place at the Regional Geologist's office during 1973. C.R. Kustra, formerly Regional Geologist of Thunder Bay, was transferred to Toronto. The author, formerly in the Precambrian Geology Section, was appointed Regional Geologist of the North Central Region of Ontario on June 1st, 1973. The remaining staff is comprised of J.F. Scott, Geological Assistant and I. Balcombe, secretary. In addition, W.H. McIlwaine, field geologist of the Precambrian Geology Section, is stationed in the office.

For the third straight year, the Thunder Bay District witnessed a decrease in claim staking activity. The number of recorded claims in 1973 (2,253) is down 34 percent from 1972 (3,442); down 50 percent from 1971 (4,627); and down 61 percent from 1970 (5,830).

Follow-up exploration work (Figures 17 & 18) was widespread throughout the district, with the Beardmore-Geraldton area receiving the most attention. Activity in this area was encouraged to some extent by the Provincial Government's Mineral Exploration Assistance Program.

Five mines produced during 1973 (see Table 21); one small private gold recovery property was in operation for two months during the summer and two properties are in an advanced exploration stage (see section on Mining and Exploration Activity).

RESIDENT AND REGIONAL GEOLOGISTS' ACTIVITIES

In addition to regular duties involving consultation on various aspects of geology and exploration, and on rock and mineral identification, the writer was engaged in the detailed mapping project of Laurie and Blackwell Townships. Visits were made to four of the Ontario Division of Mines' geological field parties in the Thunder Bay District during the field season. A familiarization tour of the underground operation at Shebandowan Mine of The International Nickel Company of Canada Limited was undertaken. During the course of the year, the Prospectors and Developers Association convention in Toronto, the Nineteenth Annual Institute on Lake Superior Geology in Madison, Wisconsin, and a Supervisory Training Course in Elliot Lake were attended.

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[1]Resident Geologist, Ontario Ministry of Natural Resources, 179 South Algoma Street, Thunder Bay. Manuscript approved for publication by the Chief, Geoservices Section, Geological Branch, Ontario Division of Mines, 4 March 1974.

The office staff has recently become increasingly involved in strategic land use planning and mineral endowment studies of Provincial Parks in the Thunder Bay District. The writer is a member on the Regional Roads Review Committee, the Regional Management Committee, and the Regional and Resident Geologists' Technical Committee.

GEOLOGICAL BRANCH ACTIVITY

Five mapping projects, directed by the Precambrian Geology Section, were carried out in the Thunder Bay District in 1973. R.P. Sage, F.W. Breaks, G. McWilliam, and G.M. Stott acted as co-leaders on a helicopter-supported geological reconnaissance survey, called Operation Ignace-Armstrong. This survey covered approximately 13,225 square miles.

H. Wallace began a two-year survey of the Opikeigen Lake area, located 7 miles northwest of Fort Hope. K.G. Fenwick, with co-leader F.D. Weinstock, mapped Blackwell and Laurie Townships. The Tashota area was mapped by S. Amukun. W.O. Mackasey began detailed mapping in Legault, Colter, Lapierre, and Hipel Townships, east of Jellicoe.

A brief description of these projects is outlined in Miscellaneous Paper 56 (Milne, Hewitt, and Wolfe, 1973).

Week-long mineral education courses were held at Thunder Bay, Schreiber, and Long Lac by E.B. Freeman of the Geoscience Information Office, Geoservices Section.

MINING AND EXPLORATION ACTIVITY

Five mines operated in 1973. Operations are summarized in the following table.

Table 21 Summary of Mining Operations in 1973

Thunder Bay Resident Geologist's District

Name	Operator	Location	Product
Geco	Noranda Mines Ltd.	Manitouwadge	Copper,zinc, silver,lead
Willecho	Willroy Mines Ltd.	Manitouwadge	Copper,zinc, silver,lead
Willroy	Willroy Mines Ltd.	Manitouwadge	Copper,zinc, silver,lead
Shebandowan	The International Nickel Co. of Canada, Ltd.	Shebandowan	Copper,nickel, platinum
Thunder Bay Amethyst	Thunder Bay Amethyst Mining Co. Ltd.	McTavish Tp.	Amethyst,granite stone

The Algoma Development Corporation, a privately owned company, produced gold from a small operation in Pifher Township. It was in operation in 1973 for two months, May and June. The owners estimate that they mined 240 tons of hand-picked ore grading approximately 4 ounces gold per ton (personal communication, 1974).

A feasibility report on the Pardee Township copper-nickel property of Great Lakes Nickel Limited, carried out by Boliden Aktiebolag of Sweden at a cost of about $2,000,000, recommends proceeding with the development and construction of a mine and mill designed for an initial production rate of 1,800,000 tons of ore annually (Northern Miner, July 5, 1973, p.3). In 1973, the decline was extended an additional 1,700 feet (now 3,700 feet long); 80,000 feet of underground diamond drilling was completed; and 20,000 feet of surface drilling was added (personal communication, 1974).

In 1973, Consolidated Louanna Gold Mines Limited dewatered the mine workings, rehabilitated the buildings and headframe, and installed all necessary equipment and services needed for the resumption of underground work on their gold property at O'Sullivan Lake, 25 miles northwest of Nakina, Ontario. In 1974, the 350-foot shaft is to be deepened to 475 feet with a new level scheduled to be established at 450 feet. It is also planned to undertake an underground diamond drilling program from the 300-foot station. Consulting mining engineer W.A. Carter, who is supervising the current program, previously estimated 96,625 tons probable ore, grading 0.367 ounce gold per ton plus 26,504 tons possible ore averaging 0.30 ounce per ton above the 300-foot level (Northern Miner, January 10, 1974, p.27).

The Algoma Steel Corporation Limited exercised its option to lease 39 claims and licenses of occupation belonging to Little Long Lac Mines Limited in the Geraldton area. Algoma carried out a considerable amount of work since taking the option, including over 20,000 feet of surface drilling. This work outlined a magnetite-hematite deposit 9,000 feet long and 600 to 1,200 feet wide with a soluble iron content of approximately 24 percent. This represents about 325,000,000 tons of open-pit ore to a depth of 1,000 feet (Northern Miner, January 3, 1974, p.1).

Lake Shore Mines Limited is considering proposals from two companies to reactivate the former gold property of MacLeod-Mosher Gold Mines Limited at Geraldton. Six years ago, the company treated 170,555 tons of its tailings to demonstrate the feasibility of gold recovery. It is estimated that there are 3,302,460 tons of tailings grading 0.072 ounce available for treatment (Northern Miner, May 10, 1973, p.3).

Ardel Explorations Limited undertook drilling on its Hemlo gold property. The property, which was formerly held by the now-defunct Lake Superior Mining Corporation Limited, was tested by about 12,000 feet of diamond drilling in the 1950's from which a modest tonnage was indicated (76,653 tons grading $10.25 at $35 gold). (Northern Miner, November 8, 1973, p.26).

MINERAL EXPLORATION ASSISTANCE PROGRAM

The provincial government's incentive program of mineral exploration assistance to designated regions continued in the Beardmore-Geraldton area for the third straight year. Figures 17 and 18 outline the area that qualified for exploration assistance. Forty contracts have been issued to date, totalling approximately $1,487,850 of which approximately $495,950 is government commitment. Not all contracts were initiated or completed, and some were altered.

ASSESSMENT WORK RECEIVED IN 1973

Assessment work data, excluding mechanical and manual work, received in 1973 is summarized in Table 23, and a summary of the types of assessment recorded for 1972 and 1973 is given in Table 22.

Table 22 Assessment Work Recorded, 1972 and 1973

Thunder Bay Resident Geologist's District

Type of Work	1972 days	1973 days
Manual Labour	1,471	2,017
Geophysical	52,757	24,320
Geological	4,776	7,450
Diamond Drilling	61,512	49,575
Power Equipment	3,322	4,591.4
Land Surveys	4,074	2,920
Geochemical	899	2,520
Core Submission	48	108
Assaying	159	39.9
Shaft Sinking	1,385	-
Bulldozer	-	767.3
Totals	130,393	94,308.6

NEW ODM MAPS AND REPORTS ISSUED IN 1973

During 1973, various reports and maps were received. Those containing information about the NORTH CENTRAL REGION are outlined below and the area covered is located on Figures 17 and 18.

P.801 Elmhirst Township, District of Thunder Bay (42 E/13). Geology by W.O. Mackasey and H. Wallace, 1972. Scale, 1 inch to ¼ mile.

P.802 Rickaby Township, District of Thunder Bay (42 E/13, 42 E/14). Geology by W.O. Mackasey and H. Wallace, 1972. Scale, 1 inch to ¼ mile.

P.817 Quaternary Geology and Industrial Mineral Resources of the City of Thunder Bay, District of Thunder Bay (52 A/6). Geology by G.J. Burwasser and assistants, 1971. Scale, 1:50,000.

P.825 Duckworth Township, District of Thunder Bay (52 B/9E). Geology by P. Srivastava, K.G. Fenwick, and assistants, 1972. Scale, 1 inch to ¼ mile.

P.826 Lamport Township, District of Thunder Bay (52 B/9E). Geology by P. Srivastava, K.G. Fenwick, and assistants, 1972. Scale, 1 inch to ¼ mile.

P.845 Summary of Airborne Geophysical Data for Northwestern Ontario on file at the Resident Geologists' Offices at Kenora, Red Lake, and Thunder Bay, Districts of Kenora, Rainy River, Thunder Bay, Cochrane, and Algoma (42, 43, 44, 52, 53, 54). Data Series Map. Compilation by R.A. Riley, H.L. King, and C.R. Kustra, 1970, 1971, 1972.

P.846 North Onaman Area (Western Half), District of Thunder Bay (42 L/4E). Geology by P.C. Thurston and assistants, 1972. Scale, 1 inch to ¼ mile.

P.847 North Onaman Area (Eastern Half), District of Thunder Bay (42 L/3W, 42 L/4E). Geology by P.C. Thurston and assistants, 1972. Scale, 1 inch to ¼ mile.

GR102 Crooks Township, Jarvis and Prince Locations, and Offshore Island, District of Thunder Bay, by J.J.C. Geul, 46 p., 7 tables, 4 figures, 7 photographs. Accompanied by Map 2250, scale 1 inch to ¼ mile.

GR110 Geology of Lower Shebandowan Lake Area, District of Thunder Bay (52 B/9). By J.A. Morin, 43p., 4 tables, 4 figures, 13 photos. Accompanied by Map 2267, scale 1 inch to ¼ mile.

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Map 2232 Nipigon-Schreiber Sheet, District of Thunder Bay (420, 42E, 52A, 52H). Geological Compilation Series. Geology compiled by M.W. Carter, W.H. McIlwaine, E.G. Pye, and P.A. Wisbey. Revised compilation 1970-1971. Original compilation by E.G. Pye, 1966. Map 2137, 1968. Scale, 1 inch to 4 miles.

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Table 23 Assessment Work and Other Information Received in 1973

Thunder Bay Resident Geologist's District

Abbreviations

A - Airborne
DDH - Diamond Drill Holes; No. of Holes and Total Footage
GL - Geological Survey
GC - Geochemistry Survey
EM - Electromagnetic Survey
Mag. - Magnetometer Survey
IP - Induced Polarization Survey
MEAP - Mineral Exploration Assistance Program
RA - Resistivity Survey

Ownership	Township or Area	NTS	Type of Data	Year Work Performed
1. Abitibi Paper Co. Ltd.	Henderson Lake Goodfellow Twp.	52B16	GL., GC., EM., Mag. 3 DDH (1,034')	June 1973
2. Addicks Canadian Properties Inc.	Cosgrave Lake	42E4/NW	2 DDH (212')	Nov. 1972
3a. Amax Exploration, Inc.	Onaman Lake (South)	42E13/NW	1 DDH(256')	Jan. 1973
3b. Amax Exploration, Inc.	Survey Lake	52H13	GL.	Mar. 1973
3c. Amax Exploration, Inc.	Irwin Twp.	42E12/NW	GL.	Aug. 1972
4. Ardel Explorations Ltd.	Twp. 73	42C12/NW	GL.	Mar.-April 1973
5. Augmitto Explorations Ltd.	Pither Twp. Elmhirst Twp.	42E13/SW/SE	6 DDH (2,376')	Jan., July 1973
6. B.B.M. Investments Ltd.	Onaman Lake (South)	42E14/NW	2 DDH(274')	Feb. 1973
7. Borschoek, V., Scali D. Thunder Bay, Ontario	Duckworth Twp.	52B9/SE	2 DDH(1,605') Mag.	Jan. 1973
8. Byrne, J.C. Toronto, Ontario	Laurie Twp.	52A12/SW	4 DDH (1,572')	Mar. April 1973
9a. Canadian Nickel Co. Ltd.	Lindsley, Walters and Leduc Twps.	42K11/NE 42E12/NE	4 DDH (1,088')	Oct. 1969 Oct. 1971
9b. Canadian Nickel Co. Ltd.	Legault Twp.	42E11/NW	1 DDH (163')	Sept. 1972
9c. Canadian Nickel Co. Ltd.	McBean Lake	42E10/NE	1 DDH (185')	Oct. 1972
9d. Canadian Nickel Co. Ltd.	Ames Twp.	52B10	1 DDH (473')	Mar.-Apr. 1970
9e. Canadian Nickel Co. Ltd.	Alfred Lake McQuesten Twp.	42E15/SE	2 DDH (361')	Oct. 1972
9f. Canadian Nickel Co. Ltd.	Castlebar Lake	42E16/SE	2 DDH (778')	Jan. 1971
9g. Canadian Nickel Co. Ltd.	Errington Twp.	42E11/NE	1 DDH (401')	Aug. 1970
10. Cerro Mining Co. of Canada Ltd. (Douglas Option)	Elmhirst Twp.	42E13/SW	EM	Oct. 1971
11. Chemalloy Minerals Ltd.	Elmhirst Twp.	42E13/SE	4 DDH (469')	Aug. 1971
12. Cominco Ltd.	Elmhirst, Leduc, Hickaby and Walters Twps.	42E13/SE 42E12/NE	Mag., 3 DDH (903')	Feb.-Mar. 1973
13. Consolidated Louanna Gold Mines Ltd.	O'Sullivan Lake	42L6/NE	Prospectus, GL	Sept. 1972
14. Comwest Exploration Co. Ltd.	Walters Twp.	42E12/NW	9 DDH (1,139')	Oct. 1972 Feb. 1973
15a. Dome Exploration (Canada) Ltd.	Saganagons Lake	52B7/SW	10 DDH (3,177')	Mar. 1973
15b. Dome Exploration (Canada) Ltd.	Saganagons Lake	52B7/SW	8 DDH (2,321')	Apr. 1973
16a. Falconbridge Nickel Mines Ltd.	Powell Lake, Nelson Lake Moss Twp.	52B7/NW/NE 52B10/SE	15 DDH (7,578')	Aug. 1972 Feb. 1973
16b. Falconbridge Nickel Mines Ltd.	Haines Twp. Kashabowie Lake	52B9/NW/SW	2 DDH (1,227')	Feb. 1973
17. Galvin, E.M., Detroit, Michigan	Pardee Twp.	52A4/SE	GL., Assays	Dec. 1970; Aug. 1971
18. Getty Mines Ltd.	Shebuskwia Lake	52P2	GL., GC., EM., Mag	June 1972
19. Giant Gripp Mines Inc.	Summit Lake	42L5/NW	Mag.	Feb.-Mar 1973
20. Gonsales, Cecil	Summit Lake	42L5/NW	2 DDH (500')	May-June 1973
21. Hanson Mines Ltd.	Vincent Twp.	42E12/NE	4 DDH (385')	May-June 1973
22. Hudson Bay Exploration & Development Co. Ltd.	Onaman Lake (South)	42D13/NE	15 DDH (8,432') (MEAP)	May-June 1972
23. Imperial Oil Ltd.	Pelsia & Hurst Lakes	52P8/SW 52P7/SW	EM, Mag.	Jan-Mar. 1972
24. Johnston A. Thunder Bay, Ontario	Dawson Road Lots	52A12/NW	1 DDH (497')	Sept. 1972

Ownership	Township Area	NTS	Type of Data	Year Work Performed
25. Kasner, M.J. Wurren, Ontario	O'Sullivan Lake	42L7/NW	4 DDH(1,591)	Sept.-Oct 1971 Jan 1972
26. Kennco Explorations (Canada) Ltd.	Twps. 82,83	42D14/15 42E3	EM, Mag	Oct.-Sept. 1971
27. Kerr Addison Mines Ltd.	Lorne & Seeley Lakes	42D16/SW/SE	EM, Mag	July 1971
28. Koosel, P. Thunder Bay, Ont.	Jurvey Lake	52H13/SW/SE	EM	Feb, Oct. 1972
29a. Labrador Explorations (Ontario) Ltd.	Pifher Twp.	42F13/SW	GL, GC, EM	July 1972
29b. Labrador Explorations (Ontario) Ltd.	Whitebirch Lake	52H13/SW/SE	GL.	Aug. 1972-Feb. 1973
30. Lake Superior Nickel Corp. Ltd.	Crooks Twp.	52A3/SW	1 DDH (1,933)	Feb. 1969 Sept. 1972
31. Lynx Canada Explorations Ltd.	Moss Twp.	52B10/SW	trenching, sampling assays	Aug. Sept. 1973
32. Mandarin Mines Ltd.	Hagey, Conacher Twp.	52B9/SE	4 DDH (4,324')	Apr.-May 1972
33. McWilliams, P.K. Milton, Ontario	Scohle & Paipoonge Twp.	52A5/SE	3 DDH (1,040')	Sept. 1973
34. Meridian Mining & Exploration Co. Ltd.	Dog River	52H4/SW	EM, Mag.	Mar.-Apr. 1972
35. Merryth, F. McIndoc Falls, Vermont	Santoy Lake	42D15/NW	EM, Mag.	Dec. 1972
36. Midland Nickel Corp. Ltd.	Pardee Twp.	52A4/SE	1 DDH (425')	Sept. 1973
37. Mineral Resources International Ltd.	Heaven Lake	52H5/SE	3 DDH (960')	Jan. 1973
38. Moorhouse, W.D. Thunder Bay, Ont.	Powell Lake	52B7/NW	Mech.	Sept. 1973
39. New Fenimore Iron Mines Ltd.	Metcalfe Lake	42L4/NE	GL. Mag.	June-Sept. 1973
40a. Noranda Exploration Co. Ltd.	Coughlan Lake Martin Lake	42L3/NE	2 DDH (551')	Dec. 1972
40b. Noranda Exploration Co. Ltd.	Onaman Lake (North)	42L4/SE	EM, Mag., AEM, GC, GL. MEAP	May-Mar. 1973
40c. Noranda Exploration Co. Ltd.	Coughlan Lake Metcalfe Lake Oboshkegan Twp.	42L4/NE 42L3/NW	EM, Mag.	Feb.-Apr. 1973
41. Noyes, C.	Wabikon Lake	52H6/NW	1 DDH (275')	Jan. 1973
42. Oja Ltd.	Greenwater Lake	5299	EM, Mag.	June 1971
43. Otto, H. Southhampton, Ontario	Klotz Lake Kassagimini Lake Pagwachuan Lake	42F12/NW 42F13/S	5 DDH (818') core samples mechanical	July 1973
44a. Phelps Dodge Corporation of Canada Ltd.	Walters Twp.	42E12/NE	IP., Mes.	Oct. 1972
44b. Phelps Dodge Corporation of Canada Ltd.	Elbow Lake	42L4/NW	1 DDH (540')	Oct. 1972
44c. Phelps Dodge Corporation of Canada Ltd.	Irwin Twp. Pifher Twp.	42E13/SE	Mag.	Mar.Feb. 1971
45. Proto Exploration & Holdings Inc.	McBean Lake	42E9/SE	Mag., GL., 18 DDH (5,784)	Oct.-Dec. 1972
46. Quebec Sturgeon River Mines Ltd.(Jupiter Minerals Inc.)	Irwin, Pifher, Walters, Elmhirst Twps.	42E10/NE	Mag., EM, GC., GL (MEAP)	1972
47. Rickaby Mines Ltd.	Rickaby Twp.	42E13/SE	GL. Prospectus	1972
48. Royex Mining Ltd.	Whitebirch Lake Kashishibog Lake	52H13	Ontario Securities Commission Report	
49. Sperle, K. Manitouwadge, Ontario	Dickison Lake	42E3/NW	EM., Mag.	May 1973
50. Standard Nickel Mines Ltd.	Pardee Twp.	52A4/SE	Prospectus	Nov. 1972
51. Stanford Mines Ltd.	O'Sullivan Lake	42L6/NE 42L7/NW	EM., Mag.	June-July 1972
52. Sturgex Mines Ltd.	Twp. 84 Tommyhow Lake	42D14/SE	Ontario Securities Commission Report	
53. Tex-Sol Explorations Ltd.	Tib Lake Armistice Lake	52H4/NW	EM., Mag.	July-Aug. 1972
54. Thunder Bay Amethyst Mining Co. Ltd.	McTavish Twp.	52A10/NW	2 DDH(375') Mechanical	July 1973
55. Van der Brink, A., Staunton, S.,	Heaven Lake	52H5/SE	EM., Mag.	Sept. 1972
56. Willroy Mines Ltd.	Manitouwadge	42M4/NE/SE	2 DDH (1001') Mag	Feb.-Mar. 1973

TIMMINS DISTRICT

By

E.G. Bright

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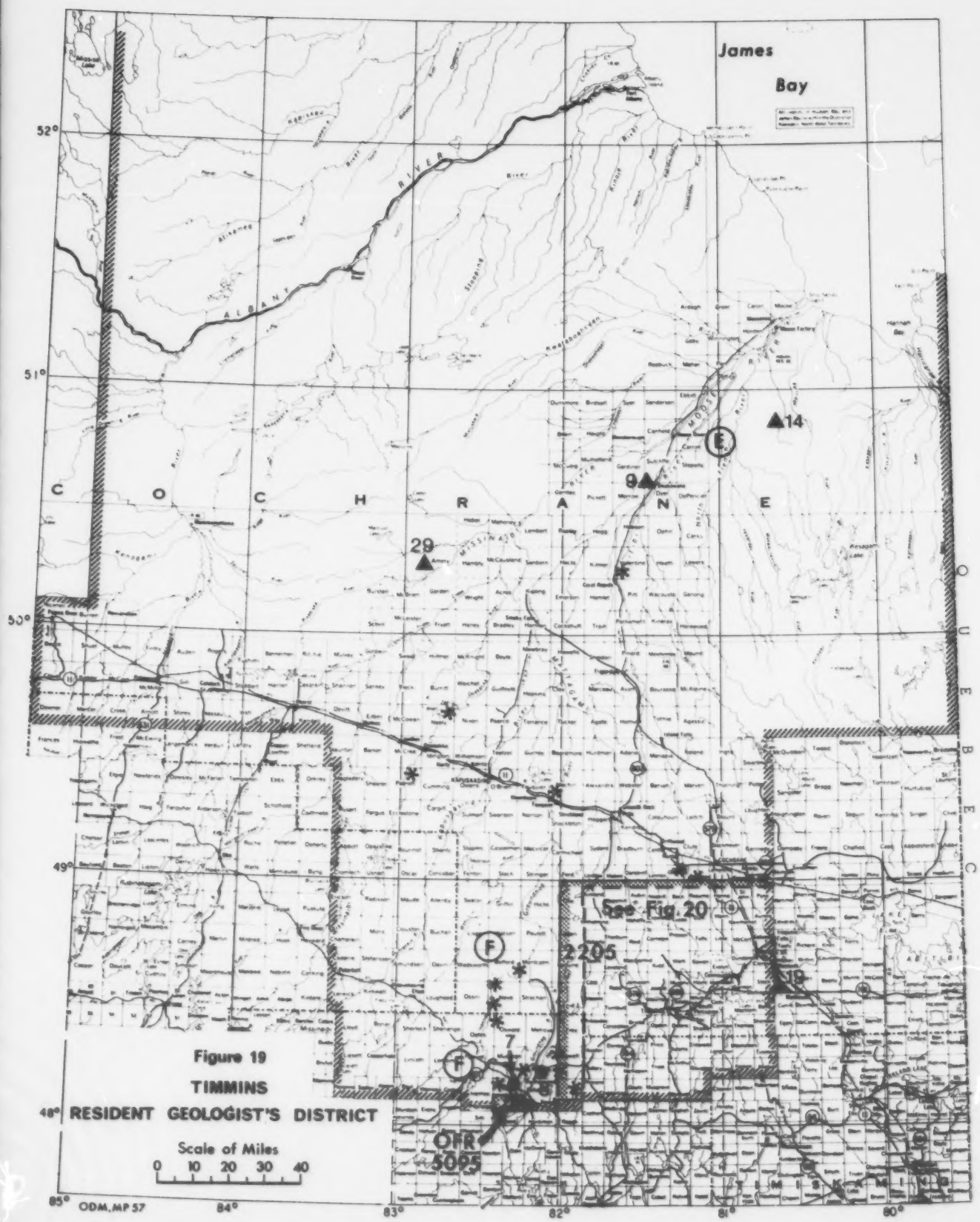

Figure 19

TIMMINS

RESIDENT GEOLOGIST'S DISTRICT

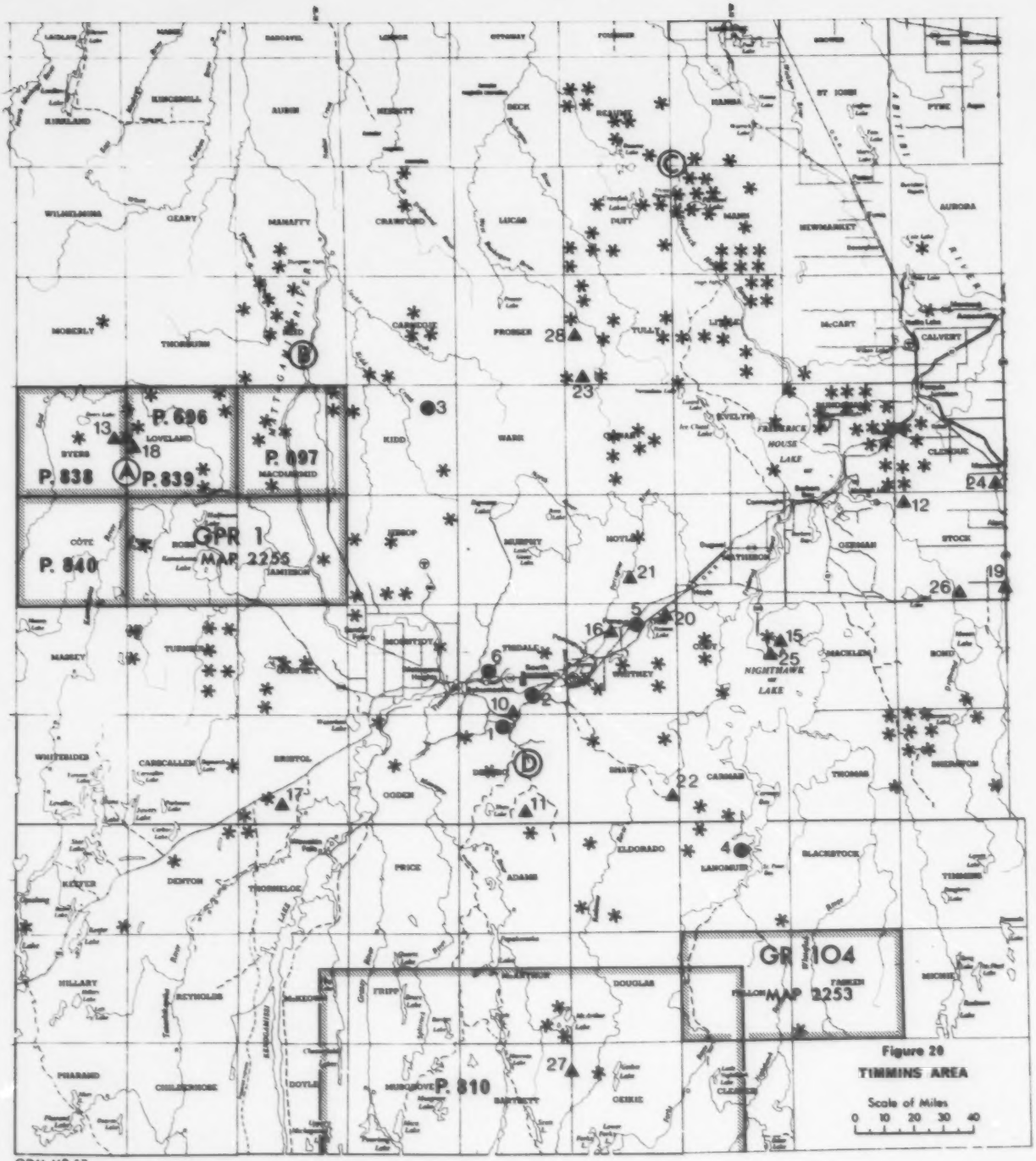

Figure 20
TIMMINS AREA

ODM MP 57

EXPLANATION

- Producing mine
- Property under evaluation and/or active exploration
- Assessment work filed 1973
- (E) Area referred to in report
- New maps and(or) reports (with number)
  - GR - Geological Report
  - GPR - Geophysical Report
  - OFR - Open File Report
  - 2205 - Geological Compilation Series
  - P - Preliminary Map
- Boundary of Resident Geologist's District

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Producing Mines 1972-1973

1.	Aunor Gold Mine (Division of Pamour Porcupine Mines Ltd.)	...	Au, Ag
2.	Dome Mines Ltd.	...	Au, Ag
3.	Kidd Creek Mine (Texasgulf Inc.- Ecstall Mining Ltd.)	...	Cu, Zn, Ag, Pb, Cd, Sn
4.	Langmuir Mine (Noranda Mines Ltd. - The International Nickel Co. of Canada Ltd.)	...	Ni
5.	Pamour Gold Mine (Division of Pamour Porcupine Mines Ltd.)	...	Au, Ag
6.	McIntyre Porcupine Mines Ltd.	...	Au, Cu, Ag
7.	New Joburke Explorations Ltd. (Noranda Mines Ltd. Option)	...	Au, Ag
8.	Reeves Mine (Canadian Johns-Manville Co. Ltd.)	...	asb

Properties under Evaluation and(or) Active Exploration

9.	Alberta Coal Ltd., Onakawana Project	...	lignite
10.	Associated Porcupine Mines Ltd., Paymaster Gold Mine	...	Au, Ag
11.	Canadian Magnesite Ltd., Deloro Township Prospect	...	magnesite, talc
12.	Clavos Porcupine Mines Ltd., German and Stock Townships Project	...	Au, Ag
13.	Cominco Ltd., Byers Township Prospect	...	Ni, Cu
14.	Consolidated Morrison Explorations Ltd., Moosonee Prospect	...	Cb
15.	Goldhawk Porcupine Mines Ltd. (Pamour Option)	...	Au, Ag
16.	Hallnor Gold Mine (Division of Pamour Porcupine Mines Ltd.)	...	Au, Ag
17.	Hollinger Mines Ltd., Loveland Township Prospect	...	Ni, Cu
18.	Hollinger Mines Ltd., Taylor Township Prospect	...	Au, Ag
19.	Holmer Mines Ltd., Bristol Township Prospect	...	Au, Ag
20.	Hoyle Gold Mine (Falconbridge Nickel Mines Ltd.), Whitney Tp.	...	Au, Ag
21.	International Nickel Co. of Canada Ltd., The Hoyle Township Prospect	...	Au, Ag
22.	M. & M. Porcupine Gold Mines Ltd., Shaw Township Prospect	...	Au, Ag
23.	McIntyre Porcupine Mines Ltd. - Golden-Offset Mines, Tully Township Prospect	...	Au
24.	Montclerg Gold Prospect, Clergue and Stock Townships Prospect	...	Au
25.	Porcupine Peninsular Gold Mines Ltd., Pamour Porcupine Option	...	Au, Ag
26.	Quebec Sturgeon River Mines Ltd., Stock Tp. Prospect	...	Au
27.	Texmont Mines Limited (Sheridan Geophysics Ltd.), Bartlett and Geikie Tps.	...	Ni
28.	Texmont Mines Ltd., Tully Tp. Prospect	...	Au
29.	Silicate-Sand, Fire Clay Prospect (Algocen Mines Ltd.)	...	sil, kaol

TIMMINS DISTRICT

By

E.G. Bright[1]

INTRODUCTION

In April 1973, as a result of reorganization of the Government of Ontario, and in conjunction with the establishment of the Ministry of Natural Resources, the writer was appointed Regional Geologist for the Northern Region at Timmins. The Northern Region effectively encompasses much of northeastern Ontario with the Kirkland Lake-TriTown area on the southeast, the Chapleau-Biscotasing area on the southwest, the Hornepayne-Oba-Hearst area on the west, and to the north the Timmins-Cochrane-Matheson areas as well as the entire region of the Hudson-James Bay Lowlands. H.L. Lovell, the Resident Geologist for the Kirkland Lake area and his staff are located at 4 Government Road East, Kirkland Lake. The writer, in conjunction with the new responsibility of co-ordinating the Ministry's Regional Geological Program, continued to carry out the duties and responsibilities of the Resident Geologist for the Timmins area.

The staff of the Northern Regional Geological Office at Timmins consisted of E.G. Bright, Regional Geologist; D.S. Hunt, Geological Assistant; K. Burke, Secretary. In late November, L.S. Jensen, Field Geologist, Precambrian Geology Section of the Geological Branch was transferred to the Toronto office in the Whitney Block, Parliament Buildings.

REGIONAL AND RESIDENT GEOLOGISTS' ACTIVITIES

Activities of the Regional Geologist and his staff included discussion and consultation with members of the mining exploration fraternity on aspects and exploration potential of the geology in the region; the production of a field guide book on the geology and mineral deposits of the Timmins area and organizing and leading the Ontario Division of Mines Geological Branch field tour of the Timmins area. During 1973, Geological Data Series Maps for Loveland, Byers, and Cote Townships, scale 1 inch to ¼ mile were compiled. D.S. Hunt carried out some detailed geological mapping of the gold properties in the southeastern part of Deloro Township, an area which is south of the main Porcupine Gold Camp and which has received little attention in the last decade.

The writer and his staff were involved with provincial and regional mineral resource land use planning activities, in co-operation with the staff from other divisions of the Ministry of Natural Resources.

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[1]Regional/Resident Geologist, Northern Region, 60 Wilson Avenue, Timmins, Ontario. Manuscript approved for publication by the Chief, Geoservices Section, Geological Branch, Ontario Division of Mines, 4 March 1974.

GEOLOGICAL BRANCH ACTIVITIES

The Geological Branch conducted four geological, three geochemical, and two ground geophysical surveys in the Northern Region during 1973.

The Timmins Resident Geologist's district contained five of these nine projects. A description of these projects is outlined in Ontario Division of Mines, Miscellaneous Paper 56 by Milne, Hewitt, and Wolfe, 1973. In brief, these projects were as follows:

1) Geological areal mapping survey of the area south of Timmins by D.R. Pyke.

2) Geological areal mapping survey of the Lightning River area east of Matheson by L.S. Jensen.

3) Magnetic survey (ground) in McCart and Calvert Townships by J.A. McCance.

4) A geochemical survey of the ultramafic rocks of the Abitibi Belt by W.J. Wolfe.

5) A regional geochemcial heavy mineral indicator survey program of the Moose River Basin by H.A. Lee and W.J. Wolfe.

MINING ACTIVITIES

Dome Mines Limited

During the first nine months of 1973, the Dome Gold Mine (No. 2, Figure 20) milled 502,100 tons of ore to produce 112,211 ounces gold. Reserves at the first of the year were estimated at about 1,590,000 tons grading 0.266 ounce gold per ton. The higher gold price has enabled previously low-grade material to be included in recent reserve calculations. (Northern Miner, April 12, 1973, p.3; Northern Miner, November 15, 1973, p.3).

Ecstall Mining Limited, Kidd Creek Mine

At present, total open-pit and underground production from the Kidd Creek Mine (No. 3, Figure 20) is 11,000 tons per day. Of this, 6,500 tons are copper ore and over 3,500 tons are lead-zinc-silver ore. Between 1,500 tons to 2,000 tons of ore are taken from the underground operation from developed areas above the 2,800-foot level. Since the beginning of operations in November 1966 to June 30, 1973, the mine has produced a total of 23,060,193 tons of ore that analyzed 1.52 percent copper, 0.40 percent lead, 9.75 percent zinc, and 4.3 ounces of silver per ton (Northern Miner, October 18, 1973). Ore reserves remaining above the 2,800-foot

level are estimated at 95 million tons containing a higher percentage of copper and a lower percentage of zinc than that previously mined.

Exploration diamond drilling to explore the orebody below the 2,800-foot level intersected a higher grade of copper ore to well below the 4,000-foot level. A hole, inclined at 55 degrees and collared on the 2,800-foot level, intersected 784 feet averaging 4.16 percent copper as well as 0.63 ounce silver per ton. This particular hole probed the orebody to a depth (from surface) of over 4,123 feet (Texasgulf Incorporated, Report to Shareholders, September 20, 1973).

Engineering studies have been initiated for a two-stage expansion of the mine and concentrator production from the present 3,600,000 tons per year to 5,000,000 or more tons per year. Engineering and feasibility studies are also underway for a possible new on-site copper refining plant to process the presently shipped copper concentrate.

Noranda Mines Limited, Langmuir Mine

The Langmuir Nickel Mine (No. 4, Figure 20) commenced production in mid-1973 with an initial milling rate of 700 tons per day. Reserves are estimated at approximately 1,500,000 tons grading 1.87 percent nickel (Northern Miner, April 12, 1973, p.21).

McIntyre Porcupine Mines Limited

The McIntyre mine (No. 6, Figure 20) in 1972 produced 104,000 ounces gold and 9 million pounds of copper. Production for the first nine months of 1973 was 7,100,000 pounds copper, 59,003 ounces gold, and 62,159 ounces silver. Gold output was less because of lower tonnage milled and lower ore grades. Reserves at the end of 1972 were put at 531,000 tons of gold ore averaging 0.284 ounce gold per ton and 3,239,000 tons averaging 0.66 percent copper and 0.03 ounce silver per ton (Northern Miner, April 5, 1973, p.3).

In December of 1973, McIntyre Porcupine Mines Limited announced that Noranda Mines Limited had purchased the McIntyre gold mine, plant, and property in the Porcupine area. Henceforth, the McIntyre gold mine will be officially referred to as the Schumacher Division of Pamour Porcupine Mines Limited.

Canadian Johns-Manville Company Limited, Reeves Mine

The Reeves Mine (No. 8, Figure 19) west of Timmins produced asbestos fibre up until December 1, 1973. At that time the mill was shut down to permit a complete redesigning and overhaul of the crushing plant. The removal of some 3,500,000 tons of waste rock from the open-pit walls is planned during this shutdown period. This stripping operation will provide for deeper open-pit mining than was initially anticipated at the outset of production.

Sheridan Geophysics Limited, Texmont Mines Limited Project

The Texmont Mines Limited nickel mine (No. 27, Figure 20) south of Timmins did not operate during 1973. The mine workings were kept dewatered and some experimental hydrometallurgical work to recover nickel from the on-site concentrate was carried out. During the year, a few carloads of nickel concentrate were shipped to the Falconbridge Nickel Mines Limited plant in Sudbury.

Pamour Porcupine Mines Limited

The Pamour Gold Mine (No. 5, Figure 20), the Aunor Gold Mine No. 1, Figure 20), the Hallnor Gold Mine (No. 16, Figure 20) as well as the Langmuir Nickel Mine (No. 4, Figure 20) are now owned and operated as separate divisions of Pamour Porcupine Mines Limited, a subsidiary of Noranda Mines Limited. The main Pamour Gold Mine mill is the main processing plant for all gold ore hoisted at Pamour, Aunor, Hallnor, and the recently optioned New Joburke gold mine in Keith Township, approximately 55 miles west of Timmins. The Pamour mill is now handling about 2,700 tons of ore per day averaging 0.15 ounce gold per ton. During the first six months of 1973, 456,100 tons were milled to produce 69,170 ounces of gold. As of March 1973, reserves at the Pamour Gold Mine were estimated at 1,418,775 tons grading 0.125 ounce gold per ton; reserves at the Aunor mine were estimated at 816,000 tons grading 0.278 ounce gold per ton, (Northern Miner, March 15, 1973, p.3). The last ore hoisted at the Hallnor was in May 1973; however, with the increasing price of gold in the world markets, a new program of evaluation and development drilling is underway on the Hallnor ore zone. Milling operations at the Aunor (mine) Division ceased in July and since that time the total production (about 750 tons per day) has been trucked to the Pamour mill for treatment. In addition, ore from the old stockpile at the recently acquired New Joburke Exploration Limited gold mine (No. 7, Figure 19) property in Keith Township was trucked to the Pamour mill in August and September. An open-pit style operation has started on this property preparatory to establishing a ramp to connect to the old 1940 underground workings. Ore averaging about 0.17 ounce per ton (Northern Miner, October 25, 1973, p.1, 13) is at present being trucked to the Pamour mill at a daily rate of about 250 tons to 300 tons.

EXPLORATION ACTIVITY

The marked decline of 1972, in exploration activity in the Timmins Resident Geologist's area continued into 1973. Substantial reductions again occurred in geophysical surveys and claim staking throughout the area. The table below summarizes the assessment work data received over the last decade since the Kidd Creek Mine discovery.

able 24 Chart of Recent Exploration Activity

Timmins Resident Geologist's District

1963	1964	1965*	1966	1967	1968	1969	1970	1971	1972	1973
otal applied days ssessment credit:										
0,370	146,633	486,246	227,732	117,299	74,580	143,304	167,486	195,457	149,387	114,917
ays credit or diamond drilling										
4,328	48,095	242,869	151,747	79,634	42,575	86,397	96,946	52,401	55,900	58,495
ays credit or geophysics:										
2,348	93,863	224,959	65,577	32,220	26,896	53,497	59,013	131,385	89,560	50,022
otal claims taked:										
1,971	20,823	47,900	5,724	2,944	3,923	3,482	3,900	3,840	2,980	2,258

Texasgulf Incorporated discovery announced April 1964.

Substantial interest was maintained, however, in the re-evaluation of former gold producers and(or) gold deposits having some indication of developed or inferred tonnages of drilled ore grade material at the present fluctuating market price. The major concentration of activity took place within a 60-mile radius of Timmins (Figure 20, Timmins Area). The numbers or letters following a name refer to the location on the district maps, Figures 19 or 20.

Assessment work data, excluding mechanical and manual work, received in 1973 is summarized in Table 25, at the end of this report.

Gold Exploration

Exploration and re-evaluation of old gold prospects, particularly by Noranda Mines Limited and its subsidiary Pamour Explorations Limited has been noteworthy throughout the district. Activities to date, however, have been primarily concentrated along the known gold-producing parallel

fault zones, the Destor-Porcupine Fault and the Pipestone Fault, from Foleyet on the west through Matheson to the Quebec border on the east.

Noranda Mines Limited has signed option agreements on the New Joburke gold deposit (No. 7, Figure 19), the Clavos Porcupine Mines Limited gold deposit (No. 12, Figure 20), the Porcupine Peninsular gold deposit, (No. 25, Figure 20), the Goldhawk Porcupine gold deposit (No. 15, Figure 20 as well as the Consolidated Montclerg Mines Limited gold deposit (No. 24, Figure 20). Negotiations are presumably still taking place between Pamour Porcupine Mines Limited and Falconbridge Nickel Mines Limited on the latter's Hoyle Gold Mine (No. 20, Figure 20), in Whitney Township, just east of the present workings of the Pamour mine.

Quebec Sturgeon River Mines Limited (No. 26, Figure 20) is carrying out extensive exploration and development drilling on their recently discovered gold deposit in south-central Stock Township, 30 miles east of Timmins. Preliminary indicated tonnages reported to date are 700,000 tons grading 0.14 ounce gold per ton (Northern Miner, September 27, 1973, p.1). This auriferous pyrite-bearing carbonatized and silicified chlorite schist zone forms a type of monoclinal flexure hinged along a south-dipping part of the Destor-Porcupine Fault. Near surface, the deposit is relatively flat lying and should lend itself to trackless mining methods during the early stages of development. Surface exploration diamond drilling is continuing to outline the limits of the deposit and underground exploration is planned for 1974 by inclined ramp.

In the same area (i.e. Stock and Taylor Townships), Hollinger Mines Limited (No. 18, Figure 20), continued to explore their own gold deposits, along strike and to the east of the Quebec Sturgeon Deposit. The pattern of concentrated diamond drilling by both companies would appear to indicate that there are several zones and(or) gold deposits situated adjacent to the Destor-Porcupine Fault, from Reid Lake in Stock Township on the west to at least the eastern boundary of Taylor Township on the east, a distance of over 8 miles.

In Bristol Township, 14 miles southwest of the heart of the main Porcupine Gold Camp, Holmer Mines Limited (No. 19, Figures 19 & 20) continued to obtain favourable results in new areas of their property, the former Orpit gold deposit. Diamond drill hole 1973-6 intersected a core length of 75.5 feet averaging 0.135 ounce gold per ton, including a 55-foot section averaging 0.16 ounce gold per ton (Northern Miner, October 11, 1973). The 10 to 12 diamond drill holes put down during 1973, further enhanced the production prospects of this silicified and tourmalinized gold-bearing chlorite schist zone situated along the flank of the Bristol Fault, a western extension of the Destor-Porcupine Fault zone. Previous surface drilling in the area of the former Orpit Mine shaft indicated reserves in this area at about 300,000 tons of about 0.16 ounce gold per ton between a depth of 400 feet and 800 feet (The Financial Post Survey of Mines 1946, p.152).

Farther to the west of Timmins, Camflo Mines Limited has made an agreement with Orofino Mines Limited to carry out an exploration development and feasibility program on their gold deposit in Horwood and Silk Townships. Earlier drilling on this property inferred some 780,000 tons grading 0.28 ounce gold per ton (Northern Miner, October 4, 1973).

Within the main Porcupine Gold Camp at Timmins new evaluations are being undertaken by Associated Porcupine Mines Limited regarding the former producing Porcupine Paymaster Gold Mine; by Broulan Reef Mines Limited regarding their property in Whitney Township and the adjacent Hugh-Pam Porcupine Mine Limited; by M. and M. Porcupine Gold Mines Limited regarding the former Malga-Carshaw gold deposit in Shaw Township as well as New Hope Porcupine Gold Mines Limited regarding the former De Santis gold mine in Ogden Township.

BASE METAL EXPLORATION

Loveland-Byers Area (A, Figure 20)

During the latter part of 1973, Hollinger Mines Limited intersected significant concentrations of nickel-copper mineralization in mafic to ultramafic rocks on their claims and on one adjacent claim optioned from "The Boulder Syndicate," a consortium composed of Imperial Oil Limited, Dome Mines Limited, Jorex Limited, and Driftex Limited. This discovery and the current diamond drilling are along a north-trending conductive zone which is situated a half mile to the north in an up-ice direction from the well known cluster of nickel-copper bearing mafic to ultramafic float. This cluster consists of ice-moved boulders, 25 feet, 12 feet, 6 feet, and 4 feet in diameter, which are scattered over a 400-square foot area of till exposed along the eastern margin of the Whiteside Esker train complex in southwestern Loveland Township (ODM Miscellaneous Paper 54, edited by E.G. Pye 1973, p.171, Figure 20). Diamond drill hole No. 3, put down on the optioned Boulder Syndicate claim P.355031, intersected six separate mineralized zones between 192.5 feet and 425 feet.

One 32.5-foot section, from 192.5 feet to 225 feet, averaged 0.81 percent nickel and 0.66 percent copper; however, a 17-foot zone in this 32.5-foot section averaged 1.17 percent nickel and 0.94 percent copper; another deeper 43-foot zone from 382 feet to 425 feet averaged 0.69 percent nickel and 0.36 percent copper within which a 20-foot zone, from 400 feet to 420 feet, averaged 0.98 percent nickel and 0.49 percent copper (Northern Miner, January 24, 1974). A descriptive drill log for this particular hole (LV-7-74) filed as assessment credit (Resident Geologist's Files, Ministry of Natural Resources, Timmins File T-1591) shows that the heavier sulphide zones are associated with altered diorite, quartz gabbro, gabbro, and serpentinite sections within a multi-unit mafic to ultramafic complex. Insufficient information is known at this time to indicate whether the Hollinger Mines Limited nickel-copper discovery is the source of the Loveland nickel-copper float cluster.

The writer examined this float and reported the following preliminary information in the Resident Geologist's report for 1972 (ODM, Miscellaneous Paper 54, edited by E.G. Pye 1973, p.173).

> "The largest (25-foot) fragment exhibits a distinct compositional layering with respect to dunite, peridotite, olivine pyroxenite, and gabbro. Interstitial pyrrhotite in the more ultramafic phases has the highest nickel content. 'Values' range from 0.5 - 1.5 percent nickel per ton and 0.5 - 2 percent copper per ton (Mineral Research Branch, Ontario Division of Mines). Copper values are highest in the pyroxenitic and gabbroic layers. The associated satellite floats are composed of one or more of the same lithologies as comprise the largest float. One of the smaller satellite floats, a copper-rich hybrid gabbro, is petrographically similar to another 10-foot diameter copper-nickel-rich, hybrid quartz-gabbro float located approximately 24 miles to the south on the flank of the same esker train as the Loveland float cluster. This Keefer Township copper-nickel float (Area C, Figure 20) also rests on till material exposed along the eastern margin of the esker complex. Analytical results range from 1-4 percent copper and 1-1.5 percent nickel (Mineral Research Branch, Ontario Division of Mines). The primary silicate minerals, particularly olivine and pyroxene in both the Loveland and Keefer floats, in general exhibit only minor serpentine alteration around the margins of individual crystals. The author supports the thesis that there was a common source for the nickel-copper floats in both areas and suggests that the host rock is not genetically related to the Archean ultramafic-mafic series with which the nickel ores in Dundonald and Langmuir Townships are associated. The source host rock is probably an isolated layered ultramafic to mafic intrusion related in origin and age to such Middle and Late Precambrian mafic complexes as the Cargill Township, Owens Township, Clay-Howells Townships, and the Pinard Township intrusions in the Kapuskasing area north of Timmins. Consideration as a possible source for these nickel-copper floats should be given to any discrete circular, oval, elliptical, or crescent-shaped magnetic anomaly situated in the general up-ice direction between Loveland Township and Highway 11, 50 miles to the north."

Reid Township Area (B, Figure 20)

During their 1973 diamond drilling program in Reid Township, about 10 miles northwest of the Kidd Creek copper-zinc-silver mine, Newmont Mining Corporation of Canada Limited intersected a particularly interesting and persistent stratigraphic unit of intercalated black graphitic shale and andesite tuff containing minor disseminated pyrite, pyrrhotite,

sphalerite, and chalcopyrite. Subsequently, the company staked up the regional trend of this zone and optioned some adjoining property. A new program of diamond drilling both along strike and to depth is planned to investigate this favourable base metal unit (Resident Geologist's Files, Ministry of Natural Resources, Timmins, File T-40).

Exploration drilling and(or) geophysical programs were carried out by the following companies in the following townships:

McIntyre Porcupine Mines Limited in Crawford, Carnegie and Lucas Township.

Texasgulf Incorporated in Lucas, Kidd, Prosser, and Reaume Townships.

Hollinger Mines Limited in Gowan Township.

Imperial Oil Limited in Gowan Township.

Dome Exploration (Canada) Limited in Gowan Township.

Jorex Limited in Gowan Township.

Hollinger Mines Limited in Gowan Township.

Asarco Exploration Company of Canada Limited in Mahaffy and Geary Townships and Dundonald and Clergue Townships.

Newmont Mining Corporation of Canada Limited in Jessop and Mann Townships.

Derry, Michener and Booth, Consultants carried out extensive geophysical and overburden geochemical drilling projects in the area north of Timmins.

Mann and Reaume Townships Area (C, Figure 20)

Exploration in this area was very active for nickel prospects in the ultramafic sills and flows as well as copper-zinc prospects in the adjacent felsic volcanic rocks surrounding the Mann-McCart tectonic sedimentary basin. International Mogul Mines Limited, Amax Exploration Incorporated, Newmont Mining Corporation of Canada Limited, Holmer Gold Mines Limited, and Derry, Michener and Booth Consultants, all carried out extensive exploration programs in this area during the 1972-1973 operation season.

Ogden, Deloro, and Shaw Townships Area (D, Figure 20)

In addition to a high potential for gold deposits, extensive deposits of magnesite and talc have been developed in numerous steatized and carbonatized ultramafic units.

Canadian Johns-Manville Company Limited cancelled a production option agreement with Canadian Magnesite Mines Limited for their magnesite-talc deposit. The former is conducting studies on the feasibility of talc recovery from their own properties in Reeves and Penhorwood Townships to the west of Timmins. Canadian Magnesite Mines Limited is continuing feasibility and laboratory studies on the recovery of talc and magnesia from their Deloro Township deposit.

James Bay Lowland Area (E, Figure 19)

The Alberta Coal Company (No. 9, Figure 19) is continuing its feasibility studies in co-operation with the Province of Ontario with regard to the open-pit mining of the Onakawana Lignite deposits and an on-site electricity generating plant. The fire-clay which is interbedded with the lignite beds may be economically extractable should production take place.

The production viability of the Consolidated Morrison Explorations Limited columbium deposit near Moosonee (No. 14, Figure 19) has not yet been firmly established. If production does take place, the company plans selective mining at a rate of about 1,000 tons per day. Recalculated reserves are estimated at 10,000 tons per vertical foot grading 0.82 percent Cb_2O_5 (columbium pentoxide).

Foleyet Area (F, Figure 19)

Exploration diamond drilling and(or) geophysical programs were carried out by Noranda Exploration Company Limited, Dome Exploration (Canada) Limited, Hanna Mining Company, Hollinger Mines Limited, and Imperial Oil Limited in the townships of Keith, Horwood and Penhorwood.

Farther to the north, Amax Exploration Incorporated, Phelps Dodge Corporation of Canada Limited, and Freeport Canadian Exploration Company carried out programs in the Belford-Nova-Montcalm Townships "greenstone" area.

NEW ODM MAPS AND REPORTS ISSUED IN 1973

P.696 Loveland Township, District of Cochrane (42 A/12). Geology by R.S. Middleton and assistants, 1970. Scale, 1 inch to ¼ mile.

P.697 Macdiarmid Township, District of Cochrane (42 A/12, 42 A/11). Geology by R.S. Middleton and assistants, 1970. Scale, 1 inch to ¼ mile.

P.810 Peterlong Lake Area, Districts of Sudbury and Timiskaming (42 A/3W, 42 A/3E). Geology by D.R. Pyke and assistants, 1972. Scale, 1 inch to 1 mile.

P.838 Byers Township, District of Cochrane, (42 A/12), Timmins Data Series. Data compiled by E.G. Bright and D.S. Hunt, 1973. Scale, 1 inch to ¼ mile.

P.839 Loveland Township, District of Cochrane (42 A/12E), Timmins Data Series. Data compiled by E.G. Bright and D.S. Hunt, 1973. Scale, 1 inch to ¼ mile.

P.840 Côté Township, District of Cochrane, (42 A/12), Timmins Data Series. Data compiled by E.G. Bright and D.S. Hunt, 1973. Scale, 1 inch to ¼ mile.

Map 2205 Timmins-Kirkland Lake, Cochrane, Sudbury and Timiskaming Districts, (31M, 32D, 41P, 42A). Geological compilation by D.R. Pyke, L.D. Ayres and D.G. Innes, 1970, 1971. Previous compilation by Ginn et al; Map 2046, 1964. Scale, 1 inch to 4 miles.

Map 2253 Fallon and Fasken Townships, District of Timiskaming (42 A/2, 42 A/3, 42 A/6, 42 A/7). Geology by D.R. Pyke and assistant, 1968. Scale, 1 inch to ½ mile.

OFR5094 Index to 1972 Assessment Work Reports, approved by the end of 1972, Ontario (31, 32, 41, 42, 48, 52, 53), by Geoscience Data Centre. Part 1, 104p.; Part 2, 40p.

OFR5097 Geology of the Keith-Horwood Area, District of Sudbury (41 O/16, 42 B/1), by F.W. Breaks, 108p. Accompanied by Maps P.747 and P.748, scale 1 inch to ¼ mile.

MP54 Annual Report of Resident Geologist's Section, Geological Branch, 1972, edited by E.G. Pye, 180p.

MP56 Summary of Field Work, 1973, by the Geological Branch (30, 31, 32, 40, 41, 42, 52). Edited by V.G. Milne, D.F. Hewitt, and W.J. Wolfe, 202p.

GR104 Geology of Fallon and Fasken Townships, District of Timiskaming, by D.R. Pyke, 31p. Accompanied by Map 2253, scale 1 inch to ½ mile.

GPR1 Magnetic Survey of Robb and Jamieson Townships, District of Cochrane, (42 A/11, 42 A/12), by R.S. Middleton, 56p. Accompanied by Map 2255, scale 1 inch to ½ mile.

NEW GSC MAPS AND REPORTS ISSUED IN 1973

Open File 116 Supplement Kam-Kotia - Jameland Plot Project, Overburden Drilling Program - by R.G. Skinner, 1973.

Geophysical Series (High Resolution Aeromagnetic) District of Cochrane, Ont. Between Latitudes 48°22'30" and 48°45'00"N and Longitudes 81°00'00" and 81°45'00"W. (42 A/5, 42 A/6, 42 A/11, 42 A/12). 18 maps at scale 1:25,000. Nos. 20,001G to 20,018G inclusive, 1973.

Table 25 Assessment Work and Other Information Received Dec. 1, 1972 to Nov. 30, 1973

Timmins Resident Geologist's District

Symbols and Abbreviations

Ag:	silver
asb:	asbestos
asp:	arsenopyrite
Au:	gold
cp:	chalcopyrite
Cu:	copper
gn:	galena
IF:	iron formation
ilm:	ilmenite
mag:	magnetite
magn:	magnesite
mil:	millerite
moly:	molybdenite
Ni:	nickel
pent:	pentlandite
po:	pyrrhotite
py:	pyrite
sp:	sphalerite
stib:	stibnite
Zn:	zinc

AEM	- airborne electromagnetic survey
AMag	- airborne magnetometer survey
CEM	- ground electromagnetic survey
DDH	- diamond drill hole
ELF	- extra low frequency ground electromagnetic survey
EM	- ground electromagnetic survey
Geol	- geological survey
Grav	- gravity survey
HEM	- horizontal loop ground electromagnetic survey
IP	- induced polarization survey
JEM	- ground electromagnetic survey
Mag	- ground magnetometer survey
OVDH	- overburden drill hole - dual tube system
Turair	- airborne electromagnetic survey
Turem	- ground electromagnetic survey
VEM	- vertical loop ground electromagnetic survey
VHEM	- combined vertical-horizontal loop ground electromagnetic survey
VLF	- very low frequency ground electromagnetic survey

Location	Ownership	Type of Work	Commodity Found	Year	Timmins File No.	Toronto File No.	NTS
Adams Tp.	Canadian Magnamont Ltd.	Geol., Mag., VHEM, 2 DDH - 835'	cp, magn, Ni, Au, py, po, sp	1972	T-642	P.279234 P.279235	42 A/6 S
Aurora Tp.	Pekarik, R. S., P.O.Box 466, Shalimar, Florida,32579,USA	Mag., 1 DDH - 500'	Cu, Ni	1972-1973	T-1523	2.1141 354200	42 A/15 SW
Belford, Nova Lakes and Oswald Tps.	Amax Potash Limited	AEM, Mag., CEM, VEM, 2 DDH - 698'	po, mag, sp, py	1971,1973	T-721	2.909 2.1230 267231 P.312999	42 B/8 NW, 42 B/9 SW
Belford Tp.	Freeport Canadian Exploration Co.	1 DDH - 597'	py, po	1973	T-1564	P.363596	42 B/9 NW
Bond and Sheraton Tps.	D. McKinnon, 85 Wilson Ave.,Timmins	3 DDH - 1701'	sp,gn, cp	1972	T-400	L.214090 L.214101 L.214116	42 A/7 NE
Bristol, Carscallen, Denton & Thornaloe Tps.	C.R.Campeall, 220 Pine St. So., Timmins, Ont.	Prospectus, Mag., VLF		1973	T-1532	2.1264	42 A/5 SE
Bristol and Mann Tps.	Holmar Gold Mines Ltd.	Prospectus		1973	T-842		42 A/5 NE
Byers and Loveland Tps.	Amax Exploration Inc.	Mag., HEM		1973	T-1575	2.1302	42 A/12 NE
Byers and Loveland Tps.	Cominco Ltd.	Mag., IP, 6 DDH - 1205'	Cu, Ni, po,py	1972,1973	T-16	2.1062 P.299058 P.299061 2.1303 2.1297	42 A/12 NE
Calvert Tp.	Montfort, M., 1274 Victoria Rd., Iroquois Falls "N", Ont.	Trenching,Mag., plugger drill, soil sampling		1972,1973	T-255	P.333305 P.333306 2.1174 P.263878	42 A/15 SW
Carman Tp.	Canadian Nickel Co. Ltd.	1 DDH - 1025'	po,py,asb,magn.	1973	T-92	327499	42 A/6 SE
Carman Tp.	Canadian Nickel Co. Ltd.	2 DDH - 382'	py, po, IF	1972	T-1009	P.292290 P.320037	42 A/6 E
Carman Tp.	Falconbridge Nickel Mines Ltd.	Mag., VEM		1973	T-1561	2.1234	42 A/7,8
Carman, Mushago & Ottaway Tps.	United Macfie Mines Ltd.	Prospectus		1972	T-591		42 A/6
Carnegie Tp.	Hollinger Mines Ltd.	1 DDH - 825'	py, mag	1973	T-93	P.307211	42 A/11 NW
Carnegie Tp.	Hollinger Mines Ltd.	HEM		1972	T-1503	2.1052	42 A/11 NW
Carnegie Tp.	Mattagami Lake Mines Ltd.	1 DDH - 597'		1973	T-177	P.308613	
Carnegie Tp.	Phelps Dodge Corp. of Canada Ltd.	2 DDH - 1906'	Ag, cp, sp, po	1972,1973	T-245	P.332360 P.332368	42 A/14 SW
Carscallen, Bristol, Denton & Thornaloe Tps.	C. R. Campeall, 220 Pine St. S., Timmins, Ontario.	Prospectus, Mag., VLF		1973	T-1532	2.1264	42 A/5 SE
Carscallen Tp.	Hollinger Mines Ltd.	1 DDH - 503'		1973	T-560	P.363515	42 A/5 NE
Clergue Tp.	Amax Potash Ltd.	Geol., VEM		1969,1970, 1973	T-1282	2.1252 2.1263	42 A/10 NW
Clergue Tp.	Asarco Exploration Co. of Canada Ltd.	ELF		1972,1973	T-1547	2.1207 2.1173	42 A/10 NE
Clergue Tp.	Canadian Nickel Co. Ltd.	3 DDH - 2915'	po, py, Asb,Ni,Cu	1972	T-493	P.236480 P.236489 P.236490	42 A/10 NW
Clergue Tp.	Falconbridge Nickel Mines Ltd.	HEM, 1 DDH - 430'		1972,1973	T-28	2.1057 292746	42 A/10 NW

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Clergue and Dundonald Tps.	Falconbridge Nickel Mines Ltd.	3 DDH - 1752'	asb, Ni	1972	T-417	P.292050	42 A/10 NW
Clergue Tp.	Falconbridge Nickel Mines Ltd.	1 DDH - 257'		1972,1973	T-516	105423	42 A/10 NW
Cody Tp.	Cody-Paymore Mining Syndicate	Prospectus, Correspondence		1936,1939	T-710		42 A/11 SE
Cody Tp.	Hill, L.E., 222 King St., Porcupine, Ont.	Manual Labour		1972	T-807	P.354734 P.327644	
Cody Tp.	Pamour Porcupine Mines Ltd.	5 DDH - 3498'		1973	T-1573	P.333172	42 A/10 NW
Crawford Tp.	McIntyre Porcupine Mines Ltd.	Mag.		1972	T-1566	2.1227	42 A/14 SW
Crawford Tp.	McIntyre Porcupine Mines Ltd.	Mag., VEM		1973	T-1567	2.1228	42 A/14 SW
Daloro Tp.	Carlson, N.D., 110 Martin St. Porcupine, Ont.	VLF		1973	T-1563	2.1245	42 A/6 NW
Daloro Tp.	Weir, L., P.O.Box 715, Timmins	Stripping		1973	T-1576	P.327772	42 A/6 NW
Denton, Bristol, Carscallen and Thornaloe Tps.	Campbell, C.R., 220 Pine St.So. Timmins, Ont.	Prospectus, Mag., VLF		1973	T-1532	2.1264	42 A/5 SE
Denton Tp.	Falconbridge Nickel Mines Ltd.	Mag.		1972	T-1520	2.1020	42 A/5 SE
Denton Tp.	Meridian Mining and Exploration Co.Ltd.	EM - galvanic, Mag.		1972	T-1569	2.1257	42 A/5 SE
Duff Tp.	Duncan R. Darry Ltd.	Turam, Mag.		1972	T-1549	2.1185	42 A/14 SE
Duff Tp.	Duncan R. Darry Ltd.	Turam, Mag.		1972	T-1550	2.1186	42 A/14 SE
Duff Tp.	Duncan R. Darry Ltd.	Turam, Mag.		1972	T-1551	2.1187	42 A/14 SE
Duff Tp.	Ecstall Mining Ltd.	VEM		1972	T-1537	2.1153	42 A/14 SE
Duff Tp.	Hollinger Mines Ltd.	1 DDH - 540'	cp	1972	T-241	P.219912	42 A/14 SE
Duff Tp.	Noranda Exploration Co. Ltd.	VEM, Mag.		1973	T-1546	2.1194	42 A/14 SE
Dundonald and Clergue Tps.	Amax Potash Ltd.	Geol., VEM		1969,1970	T-1282	2.1252 2.1263	42 A/10 NW
Dundonald Tp.	Asarco Exploration Co. of Canada Ltd.	Mag., ELF		1972,1973	T-1515	2.1090 2.1202 2.1219	42 A/10 NW
Dundonald Tp.	Asarco Exploration Co. of Canada Ltd.	Mag., ELF		1972,1973	T-1516	2.1085 2.1203 2.1204 2.1205 2.1206	42 A/10 NW
Dundonald Tp.	Asarco Exploration Co. of Canada Ltd.	Mag.		1973	T-1525	2.1132	42 A/10 NW
Dundonald Tp.	Asarco Exploration Co. of Canada Ltd.	ELF		1973	T-1560	2.1224	42 A/10 NW
Dundonald and Clergue Tps.	Falconbridge Nickel Mines Ltd.	3 DDH - 1752'	asb, Ni	1972	T-417	P.292050	42 A/10 NE
Dundonald Tp.	Texasgulf Inc.	Mag., HEM, VEM		1971,1972	T-184	2.958	42 A/10 NW
Dundonald Tp.	Texasgulf Inc.	Mag., HEM, VEM		1972	T-1505	2.957	42 A/10 NW
Dundonald and Evelyn Tps.	Texasgulf Inc.	Mag., HEM		1971,1972	T-1506	2.955	42 A/10 NW
Eldorado Tp.	Canadian Nickel Co. Ltd.	1 DDH - 750'	po, py, asb	1973	T-473	255864	42 A/6 E
Eldorado Tp.	Canadian Nickel Co. Ltd.	1 DDH - 1201'	ilm, py, asb, IP	1973	T-687	99713	42 A/6 SE
Eldorado Tp.	Canadian Nickel Co. Ltd.	1 DDH - 602'	po	1973	T-1383	355681	42 A/6 SE
Evelyn Tp.	Texasgulf Inc.	Mag., HEM, VEM		1971,1972	T-190	2.959	42 A/10 NW
Evelyn and Dundonald Tps.	Texasgulf Inc.	Mag., HEM		1971,1972	T-1506	2.955	42 A/10 NW
Evelyn and Little Tps.	Texasgulf Inc.	Mag., HEM, VEM		1971,1972	T-1510	2.954	42 A/10 NW
Fauken Tp.	Noranda Exploration Co. Ltd.	1 DDH - 349'	po, cp	1971	T-525	P.217938	42 A/2 NW
Fournier Tp.	Duncan R. Darry Ltd.	Turam, Mag., 1 DDH - 700'	cp, po, Au, Ag.	1972,1973	T-1545	P327826 2.1236	42 A/14 NE
Gaikie Tp.	Falconbridge Nickel Mines Ltd.	VEM		1972,1973	T-79	2.1143	42 A/3 NE
Godfrey Tp.	Hollinger Mines Ltd.	Mag.		1972	T-496	2.1149	42 A/5 NE
Godfrey Tp.	Hollinger Mines Ltd.	1 DDH - 1154'	py, cp	1973	T-1460	P.98486	42 A/5 NE, 42 A/6 NW
Godfrey Tp.	Noranda Exploration Co. Ltd.	VEM, Mag.		1971	T-1513	2.953	42 A/5 NE
Gowan Tp.	Canex Placer Ltd.	Mag., IP, Turam		1972	T-1518	2.947	42 A/11 NE
Hanna Tp.	Duncan R. Darry Ltd.	Turam, Mag.		1972	T-1554	2.1209	42 A/15 NW
Hanna and Mann Tps.	Noranda Exploration Co. Ltd.	Soil Sampling		1971,1972	T-152	2.1073	42 A/14 E

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Hoyle Tp.	Chambers, M.,6 Dalaite Prop., Timmins, Ont.	Shaft Sinking		1972	T-1461	P.96699	42 A/.. SE
Jamieson Tp.	Canadian Nickel Co. Ltd.	1 DDH - 852'	py, po	1973	T-1534	P.352996	42 A/11 SW
Jessop Tp.	Cons. Louvana Gold Mines Ltd.	Prospectus		1973	T-1531		42 A/11 SW
Jessop Tp.	Dome Exploration (Canada) Ltd.	Turam, Mag., 3 DDH- 1298'	cp, sp, Au, py, Ag	1972,1973	T-1522	2.1111 P.329049 P.329050 P.329051	42 A/11 SW
Jessop and Mountjoy Tps.	Hammond, E., P.O.Box143, St.Petersburg, Fla., 33731, U.S.A.	HEM, Mag.		1973	T-1568	2.1246	42 A/11 SW
Jessop Tp.	Hollinger Mines Limited	HEM		1972	T-316	2.985	42 A/11 SW
Jessop Tp.	Hemmont Mining Corp.of Canada Ltd.	1 DDH - 947'	cp, po, py, sp	1972	T-40	P.301177	42 A/11 SW
Keefer Tp.	Galata, F., 12 Legume Rd., Weston, Ont.	Trenching		1973	T-1556	P.371395	42 A/5 SE
Keefer Tp	Sturgex Mines Ltd.	Prospectus		1972	T-239		42 A/5 SE
Keith Tp.	Dome Exploration (Canada) Ltd.	EM-gun, Mag., 9 DDH - 2999'	IP, cp, po, sp, moly, Ag, Bi, asb	1972	T-249	P.327598 P.333453 P.333436 P.344440 P.353734 2.1226	42 B/1 NW
Keith Tp.	Hostoe Prospecting Syndicate	Geol.		1946	T-161		42 B/1 NW
Keith and Penhorwood Tps.	Noranda Exploration Co. Ltd.	4 DDH - 1462'	py, cp	1971,1972	T-151	P320182 P293635	42 B/1 SE
Keith Tp.	Noranda Exploration Co. Ltd.	2 DDH - 725'	cp, sp, po, py	1972	T-402	P.292846 P.292309	42 B/1
Kenogaming Tp.	Texasgulf Inc.	3 DDH - 369'	py, cp, IP	1972	T-1533	P.327511 P.327742	42 A/4 NW
Kidd Tp.	Hollinger Mines Ltd.	1 DDH - 506'		1972	T-466	P.255744	
Kidd Tp.	Mattagami Lake Mines Ltd.	1 DDH - 507'		1973	T-1526	P.308645	42 A/11 NW
Langmuir Tp.	Canadian Nickel Co. Ltd.	1 DDH - 1302'	po, py, gn, pent	1972	T-74	P.279005	42 A/6 SE
Langmuir Tp.	Canadian Nickel Co. Ltd.	2 DDH - 2595'	py	1970	T-1386	P.99539 P.99557	42 A/7 SW
Langmuir Tp.	Xtra Developments Inc.	Prospectus		1973	T-898		42 A/6 SE
Little Tp.	Amax Potash Ltd.	Mag., AEM, CEM		1971	T-163	2.1156 2.1230	42 A/15 SW
Little Tp.	Amax Potash Ltd.	HEM		1971	T-1527	2.1067	42 A/14 SE
Little Tp.	Duncan R. Derry Ltd.	Mag., Turam		1972	T-1555	2.1211	42 A/11 NE
Little Tp.	Kingdom Minerals Ltd.	Mag., HEM		1972	T-225		
Little and Evelyn Tps.	Texasgulf Inc.	Mag., HEM, VEM		1971,1972	T-1530	2.954	42 A/10 NW
Little Tp.	Texasgulf Inc.	Mag., HEM, VEM		1971,1972	T-1531	2.956	42 A/11 NE
Loveland and Byers Tps.	Amax Exploration Inc.	Mag., HEM		1973	T-1575	2.1302	42 A/12 NE
Loveland Tp.	Bombay Explorations Inc.	HEM, Mag.		1972	T-167	2.983	42 A/12 NE
Loveland and Byers Tps.	Cominco Ltd.	Mag.		1972	T-16	2.1062	42 A/12 NE
Loveland Tp.	Duncan R. Derry Ltd.	Mag., Turam, Grav.		1972	T-1572	2.1247	42 A/12 NE
Loveland Tp.	Duncan R. Derry Ltd.	Turam, Mag., Grav., Geol.		1972	T-1574		
Loveland Tp.	Hollinger Mines Ltd.	1 DDH - 498'	cp	1973	T-560	P.299613	
Loveland Tp.	Hollinger Mines Ltd.	1 DDH - 614'	cp	1973	T-1543	P.91791	42 A/12 NE
Macdiarmid Tp.	Canadian Johns-Manville Co.Ltd.	Mag.		1972	T-1539	2.1169	42 A/12 NE
Macdiarmid Tp.	Hollinger Mines Ltd.	HEM, 2 DDH - 880'	cp	1971,1973	T-560	2.929 P.255218 P.352944	42 A/12 NE
Macdiarmid and Reid Tps.	Tex-Sol Explorations Ltd.	AMag., Turair		1971	T-1514	2.949	42 A/12 NE 42 A/13 SE
Macdiarmid Tp.	Wilson, W., 143 Cedar St. N., Timmins, Ontario.	7 DDH - 2710'	py, cp	1972	T-252	P.325955 P.325956 P.325952 P.320843 P.320844 P.320849	
Machin Tp.	Rio Tinto Canadian Exploration Ltd. (Riocanex)	VEM, HEM, Mag., Geol., 2 DDH - 801'	IP, po, Au, py	1972	T-1502	P.320266 P.332971 2.1063	42 H/5 SW

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Mahaffy Tp.	Duncan R. Derry Ltd.	Mag., Grav., Turam, 2 DDH - 1022'		1972,1973	T-1540	P.344408	42 A/13 SE
Mann Tp.	Amax Potash Ltd.	CEM, VEM		1971	T-178		42 A/15 SW
Mann Tp.	Amax Potash Ltd.	Mag., VEM		1972	T-1521	2.1066 2.1161	42 A/15 SW
Mann Tp.	Amax Potash Ltd.	Mag., VEM		1972	T-1535	2.1099	42 A/14,15
Mann Tp.	Holmer Gold Mines Ltd.	6 DDH - 2450'	po, sp, FW, cp, asb, mag.	1973	T-388	217961 217963 217973 293931 292181 292182	42 A/14 SE
Mann and Bristol Tps.	Holmer Gold Mines Ltd.	Prospectus		1973	T-842		
Mann and Hanna Tps.	Noranda Exploration Co. Ltd.	Soil Sampling		1971,1972	T-152	2.1073	42 A/14 E
Mann Tp.	Noranda Exploration Co. Ltd.	VEM, Mag.		1972,1973	T-1562	2.1241	42 A/15 SW
McArthur Tp.	Erehn, G.E. 19 Hollywood Cresc., Toronto, Ont. M4L 2K4	Trenching		1973	T-1570	P.347131	42 A/3 NE
McArthur Tp.	Forget,M., 346 Spruce St.S.,Timmins	Trenching		1973	T-1565	P.354949	42 A/3 NE
McArthur Tp.	Whitmarsh,B.,344 Spruce St.S.,Timmins	Trenching		1973	T-616	100427	42 A/3 NE
McCart Tp.	Asarco Exploration Co. of Canada Ltd.	ELF		1973	T-1559	2.1225	42 A/10 NW
Moberly Tp.	Duncan R. Derry Ltd.	Mag., Turam, 1 DDH - 420'		1972,1973	T-1544	P.354131 2.1262	42 A/13 SW
Mountjoy Tp.	Bonhomme, J.V.,168 Algonquin Blvd.E., Timmins, Ontario	VEM, Mag.		1972	T-1501	2.1026	42 A/11 SW
Mountjoy and Jessop Tps.	Hammond, E., P.O.Box 143, St.Petersburg, Florida, 33731, U.S.A.	MEM, Mag.		1973	T-1568	2.1266	42 A/11 SW
Muskego, Carman and Ottaway Tps.	United Macfie Mines Ltd.	Prospectus		1972	T-591		42 B/8 SW
Neely Tp.	Cedam Limited	3 DDH - 201'	FW	1972	T-1541	P.344086	42 G/10 SE
Nova, Oates and Oswald Tps.	Amax Potash Ltd.	AEM, Mag., Geol, CEM, VEM 3 DDH - 1205'	Ag, Zn, cp, FW, po, mag.	1970,1973	T-721	2.923 2.909 P.264560 2.1230 267231 P.312999	42 B/8 NW 42 B/9 SW
Oates, Nova and Oswald Tps.	Amax Potash Ltd.	AEM, Mag., Geol. 1 DDH - 100'		1970,1973	T-721	2.923 2.909 P.256478	42 B/8 NW
Ogden Tp.	Biko Resources Inc.	2 DDH - 1444'	FW	1973	T-1558	P.344970 P.344972	42 A/6 SW
Ogden Tp.	Pearce,A., 377 Patricia Blvd., Timmins, Ont.	Trenching		1972	T-1562	P.354570	42 A/6 NW
Oswald, Nova and Oates Tps.	Amax Potash Ltd.	AEM, Mag., Geol.		1970,1972	T-721	2.923 2.909	42 B/8 NW
Ottaway, Carman and Muskego Tps.	United Macfie Mines Ltd.	Prospectus		1972	T-591		42 B/8 SW
Parnell Tp.	Castonguay,A., Opasatika, Ont.	Trenching, 1 DDH - 324'		1972	T-1512	P.333801 P.333804	42 G/7 NW
Featherwood and Keith Tps.	Noranda Exploration Co. Ltd.	4 DDH - 1462'	FW, cp	1971,1972	T-151	P.320182 P.293635	42 B/1 SE
Rasmus Tp.	Cadesky, F., 767 Spadina Rd., Toronto 10, Ont.	2 Prospectuses, 2 DDH - 518'	cp, po, Mi	1972,1973	T-1508	P.332002 P.332007	42 A/14 NE
Rasmus Tp.	Duncan R. Derry Ltd.	Turam, Mag.		1972	T-1548	2.1166	42 A/14 NE
Rasmus Tp.	Duncan R. Derry Ltd.	Mag., Turam		1972	T-1552	2.1162	42 A/14 NE
Rasmus Tp.	Duncan R. Derry Ltd.	Mag., Turam		1972	T-1553	2.1210	42 A/14 NE
Rasmus Tp.	Ecstall Mining Ltd.	Mag., MEM, 18 CVDH - 1140'		1972,1973	T-1529	2.1137 2.1154	42 A/14 NE
Reeves and Sewell Tps.	Card Lake Copper Mines Ltd.	Prospectus		1973	T-44		42 B/1 NE
Reeves and Sewell Tps.	Johnson, J.J., Box 233, Timmins, Ont. Wright, A.M., RR1, Gilford, Ont.	Mag., VEM, 6 DDH - 286'	FW, sp, cp, mag., Au, Ag., sp	1972	T-1519	2.1093 P.313446 P.332546 P.332549	42 A/4 NW 42 B/1 NE
Reeves Tp.	Noranda Exploration Co. Ltd.	1 DDH - 408'	cp, FW	1971	T-402	P.292749	42 B/1 NE
Reid Tp.	Caltor Syndicate	4 DDH - 1641'	cp	1972,1973	T-235	P.326525 P.326524	
Reid Tp.	Mollinger Mines Ltd.	MEM, Mag.		1972	T-560	2.968 2.979 2.980 2.969	42 A/11

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Reid and Macdiarmid Tps.	Tem-Sol Explorations Ltd.	AMag., Turair		1971	T-1514	2.949	42 A/12 NE 42 A/13 SE
Reid Tp.	Newmont Mining Corp. of Canada Ltd.	Mag., IP, Resistivity		1972	T-40	2.1094	42 A/11 SW
Robb Tp.	Casey Mines Inc.	1 DDH - 573'		1973	T-453	P.327661	
Sewell Tp.	Wright, A., R.R.1, Gilford, Ont.	Prospectus 16 DDH - 880'	asb, stib, berthierite, cp, py, po, gn. native Cu	1972,1973	T-44	P.298979 P.345345 P.355576 P.313446	42 A/5 SW
Sewell and Reeves Tps.	Wright, A., R.R.1, Gilford, Ont. Johnson, J.J., Box 233, Timmins	Mag., VEM, 6 DDH - 286'	py, gn, cp, mag., Au, Ag., sp	1972	T-1519	P.313446 P.332546 P.332549 2.1093	42 A/4 NW, 42 B/1 NE
Shaw Tp.	Arrowsmith, W.C., Suite 509, 55 York St., Toronto, Ont.	3 DDH - 1047'	py, cp	1973	T-211	P.353825	42 A/6 NE
Shaw Tp.	Pac Exploration Ltd.	Prospectus, Geol, IP, Mag.		1972	T-182	2.1142	42 A/6 NE
Shaw Tp.	Pfeifer, F., P.O. Box 382, South Porcupine, Ontario	Trenching		1973	T-214	P.332604	42 A/6 NE
Sheraton Tp.	Card Lake Copper Mines Ltd.	1 DDH - 452'	cp, sp, Au, po, py	1972	T-213	P.327531	42 A/7 NE
Sheraton and Thomas Tps.	Cominco Ltd.	AEM, AMag.		1972	T-650	2.962 2.961	42 A/7 N
Sheraton and Bond Tps.	McKinnon, D., 85 Wilson Ave., Timmins, Ontario.	3 DDH - 1701'	sp, gn, cp	1972	T-400	L.214090 L.214101 L.214116	42 A/7 NE
South of English River Post, Area of	Keevil Mining Group Ltd.	DD core specimens			T-381		
Squirrel River, Area of	Keevil Mining Group Ltd.	DD core specimens			T-381		
Stock and Taylor Tps.	Quebec Sturgeon River Mines Ltd.	Prospectus, 2 DDH - 1671'		1972, 1973	T-1509	P.354605 P.354606	42 A/10 SE
Thomas and Sheraton Tps.	Cominco Ltd.	AEM, AMag.		1972	T-650	2.962 2.961	42 A/7 N
Thomas Tp.	Hill, L.E., 122 Malan Ave., P.O. 1022, South Porcupine, Ontario	Trenching		1972	T-1557		42 A/7 NW
Thornaloe, Bristol, Carscallen and Denton Tps.	Campsall, C.R., 230 Pine St. So. Timmins, Ontario	Prospectus, Mag., VLF		1973	T-1532	2.1264	42 A/5 SE
Tisdale Tp.	McIntyre Porcupine Mines Ltd.	IP		1972	T-264	2.1040	42 A/6
Tully Tp.	Clarke, T.A., Room 9, Gold Range Hotel, Schumacher, Ont.	JEM, Mag.		1972	T-1517	2.1004	42 A/11 NE
Tully Tp.	Dome Exploration (Canada) Ltd.	Turam, Mag., 7 DDH - 3657'	py, cp, sp	1972	T-1507	P.332242 P.320838 P.339253 P.339246 P.339240 P.339245 2.1061	42 A/14 SE
Tully Tp.	Dome Exploration (Canada) Ltd.	Turam, Mag.		1972	T-1528	2.1012	42 A/11 NE
Tully Tp.	Hollinger Mines Ltd.	4 DDH - 2086'	magn., cp, py, sil, asp, Au	1972,1973	T-681	P.102012 P.255751	42 A/11-14
Tully Tp.	Marduzzi, E., Box 124, Schumacher, Ont.	Turam		1972	T-1538		42 A/14 SE
Tully Tp.	Noranda Exploration Co. Ltd.	2 DDH - 847'	py	1973	T-1229	P.99318 P.99319	42 A/14 SE
Tully Tp.	Pickle Crow Explorations Ltd.	DD core specimens			T-1492		42 A/11 NE
Turnbull Tp.	Allerston, R.E., 322 Elm St.N., Timmins, Ont., and Wilson, W.	Mag., VEM		1973	T-202	2.1183	42 A/12
Turnbull Tp.	Klar Mines Ltd.	Mag., Geol.		1972	T-1524	2.1121 2.1129	42 A/5 NE
Turnbull Tp.	Klar Mines Ltd.	Mag.		1972	T-1536	2.1175	42 A/5 NE
Turnbull Tp.	Noranda Exploration Co. Ltd.	VEM, Mag.		1972	T-1504	2.1038	42 A/5 NE
Turnbull Tp.	Rochon, D., c/o Amaranium Mines Ltd. Jamestown Explorations Inc.	IP, Resistivity 1 DDH @ 202' deep soil sampling		1972, 1973	T-304	2.992 P.320142	42 A/5 NE
Valentine Tp.	McKinnon, D., P.O. Box 1170, Timmins, Ont.	Trenching		1972	T-1665	P.313612	42 I/5 SE
Whitney Tp.	Allerston, R., 322 Elm St. N., Timmins, Ontario.	Stripping, blasting, trenching		1973	T-1052	P.94860 P.54993 P.55291	42 A/6 NE
Whitney Tp.	Dome Exploration (Canada) Ltd.	Turam, Mag.		1972	T-1530	2.1084	42 A/6 NE
Whitney Tp.	Summit Gold Mines Ltd.	Prospectus		1973	T-1571		42 A/11 SE